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THE SOUTHERN

PLANTER AND FARMER,

DEVOTED TO

Agriculture, Horticulture, and Rural Affairs.

L. R. DICKINSON.....Editor and Proprietor.

RICHMOND, VA.,

SEPTEMBER, 1875.

No. 9.

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THE SOUTHERN PLANTER & FARMER,

DEVOTED TO

AGRICULTURE, HORTICULTURE AND RURAL AFFAIRS

Agriculture is the nursing mother of the Arts.—XENOPHON.
Tillage and Pasturage are the two breasts of the State.—SULLY.

L. R. DICKINSON, . . . - - - EDITOR AND PROPRIETOR.

New Series. RICHMOND, VA., SEPTEMBER, 1875. No. 9

[For the Southern Planter and Farmer.]

COST AND VALUE OF COMPOSTS.

Who has not frequently observed that the thorough or at least good cultivator makes fair to good crops from poor land by his good manipulations, whilst he has also seen the bad cultivator again and again fail to do more than make a miserable crop from very good land by poor and improper cultivation? It seems to me that no observing, thoughtful man can live long in the country without observing frequent repetitions of such things almost every season.

And now, as to the comparative cost of home-made putrescent manures and commercial fertilizers. Good fertilizers cost from \$45 to \$70 per ton—say on an average in the neighborhood of \$50 per ton, or \$2.50 per one hundred pounds; and suppose we admit that 500 pounds of fertilizer equals 25 two-horse loads of barn-yard manure or compost. That would be \$12.50 per acre for the fertilizer; the question is, can you make and apply 25 loads of manure for \$12.50? I think it can be done. Suppose you have stock enough and forage enough. One team and two men will gather the necessary soil, compost, turn over, haul out, and spread with great ease, an average of six loads per day. Now count 300 working days, and you have 1,800 loads per annum. You can feed your team for \$325.00, and your labor will cost you \$325.00, or \$650.00 total cost. Now, admitting that 500 pounds of fertilizer equals 25 loads of manure, that would be 100 loads manure equals one ton fertilizer; 1,800 loads equals 18 tons, costing \$900, exclusive of freight, hauling, spreading, &c. To me it is evident that I am a great gainer by the process of composting on the above basis. But I am satisfied that 25 loads of good compost or manure will yield double the results that 500 pounds of fertilizer will.

Again, in order to produce home-made manure I cease to ship

forage and grain at a cost of 12 per cent. transportation, and convert those substances into manure, shipping my product (butter) by express at the cost of $2\frac{1}{2}$ per cent., relieving myself and my team of the heavy hauling, and my township of the necessary heavy travel, and these are no small items in the calculation.

Another important consideration for poor farmers is the fact that the money outlay of my 1,800 loads of manure is only \$220, the balance being paid in the products of the place, consumed there to reproduce more manure; and that \$220 is paid, say within an average of six months. Now, if you do not pay cash for your commercial fertilizers, you must pay a very large additional profit; in any case it is equivalent to planking down the round sum at once before you can receive the shipment. This, however, is but a faint outline of the picture—look on both sides and decide for yourselves. I have no interest but truth to serve, and am anxious to “buy it and sell it not,” and if you can teach me a more excellent way, I will gladly walk with you. G. B. S.

[Our correspondent has evidently gotten some very broad glimpses of the truth, but we cannot fully endorse all he says. The trouble with him is the very same that we find with all, or at least a very large proportion of our farmers. It is simply this, he does not know definitely what is the cost and value of his manure—so much depends upon the amount of real fertilizing elements contained in the composts. The distance the material for making it has to be moved; the distance the manure has to be transported to the field, and many other circumstances affecting its cost—then the amount and character of provender consumed by the stock, whether made under shelter or out of doors, and other circumstances affecting its value as a fertilizer, that it is impossible to form any very definite idea in the matter unless all the circumstances are known. We know a farmer who keeps about 30 head of cattle and 10 horses. The cattle are fed during the winter in an open lot, so constructed that everything that falls in it must run to the cent e. This lot contains something like $1\frac{1}{2}$ acre of ground. Upon one side is the barn and horse stables, and the water from these roofs run into the lot. The cattle are fed on wheat-straw, shucks and corn-fodder, and littered with leaves, &c. The horse stable is cleaned out and the manure spread upon the lot. In the spring this manure, saturated with water, is hauled out, and after lying in the field until dry, is scattered and plowed in for corn. More than three fourths of the weight hauled to the field is pure water, of which the field already has too large a supply. We think this man's manure costs more than it is worth.

Upon the subject of commercial fertilizers] we have very definite and conclusive opinions based upon our own experience, and fully sustained by the opinions of others. They are excellent auxiliars, but too costly to use alone unless for such crops as tobacco. As affording the means of improving worn out lands by fitting them for raising peas, clover, or some other renovating crop, we consider them invaluable. But the subject is too prolific and we must defer a full discussion of it for the present.—Ed.]

[For the Southern Planter and Farmer.]

FERTILIZERS.

In your August number, I notice a communication from ex-Gov. Smith, on the fertilizer question, referring more especially to Prof. Ville's Complete Manure, giving the cost of materials, etc.

His remarks in regard to a thorough preparation of the soil are good and worthy the attention of farmers, and I should certainly rejoice if the farmer could find out exactly what his land needs in the way of lime, nitrogen, phosphoric acid, potash, &c., but fear, if he depends upon the analysis of the chemist, or any other process, except by actual experiment * with preparations containing different proportions of the four principal elements of plant growth named above, he will fail. These experiments should be made by every farmer who feels any interest in successful agriculture—and who does not?

As to the cost of the material of "Ville's Complete Manure," I think the Governor has placed his cost mark a little too high. For instance, he puts the cost of acid phosphate of lime, at \$35 per ton, whereas it can be bought in Baltimore at \$25 per ton, and might be furnished at \$20 per ton. Nitrate of potash will cost from 80 to 90 cents per pound, and sulphate of ammonia can now be bought for $4\frac{1}{8}$ cents. The cost of plaster depends on circumstances. I see he puts it at \$7.25 per long ton.

He proposes to substitute sulphate of potash for nitrate, or salt-petre. Here is a slight mistake. Sulphate of potash, or kainit, contains only 16 or 17 per cent. of actual potash, and can be bought anywhere from 14 or 15 to \$30, depending on whom you purchase of. The *muriate* of potash contains 54 per cent. of actual potash, and can be bought for, from $2\frac{1}{4}$ to 3 cents per pound, depending upon the same contingencies. Whether Ville's Complete Manure will be, or should be generally adopted by our farmers, is somewhat problematical. It is made up of the different salts, furnishing nitrogen to the plant in the shape of nitrate of potash, and sulphate of ammonia. The difficulty I apprehend, is, it is very soluble and stimulates the plant in its early growth, and either becomes exhausted in the early stage of growth, or is dissolved in the soil by rains, and fails to give the necessary support in the maturing stage of growth. Morfit, in his large work upon fertilizers, recommends the use of a certain amount of these nitrates or salts of ammonia for the early stage of plant growth, combined with animal matter, guano or fish scrap, which by decomposing gradually in the soil, gives support to the plant in its maturing stage.

Allow me to suggest a few formulæ, which I think will be found to answer an excellent purpose generally :

1200 pounds, S. C. Dissolved Bone, costing,	\$15 00
300 " Muriate of Potash, costing,	6 75
500 " Animal Matter, costing,	10 00
	<hr/>
	\$31 75

This will yield 6 per cent. of soluble phosphoric acid; over 8 per cent. of actual potash and about 3 per cent. potential ammonia; or

1000 pounds,	Dissolved S. C. Bone,	costing,	\$12 50
200 "	Muriate of Potash,	"	4 50
700 "	Animal Matter,	"	14 00
100 "	Sulphate Ammonia,	"	5 00

\$36 00

This will yield 5 per cent. soluble phosphoric acid; more than 5 per cent. of actual potash; about 4.2 per cent. of potential ammonia, and 1.25 per cent. of actual ammonia, equivalent to about 6 per cent. of potential ammonia, or

1200 pounds,	Dissolved S. C. Bone,	costing,	\$15 00
300 "	Kainit,	"	3 00
500 "	Fish Scrap,	"	5 00

\$23 00

Yielding 6 per cent. soluble phosphoric acid, about 2.5 per cent. actual potash and about 2 per cent. of potential ammonia, which is about as good a yield as the most of the fertilizers in the market show, containing as it does, three of the most important elements of plant growth.

Dissolved animal bone will cost from \$40 to \$45 per ton, and will yield about the same amount of phosphoric acid as the South Carolina phosphate, but will yield in addition, about 3 per cent. of ammonia to the ton. Dissolved bone ash will cost about \$35 per ton, and will yield about 20 per cent. of soluble phosphoric acid, or twice as much as the others.

Your next correspondent, L. S. B. of North Carolina, declares himself astonished that any one with the least pretensions to scientific knowledge, should countenance the wild and erroneous theory that Peruvian guano is a mere stimulant to the growing plant. While I am not prepared to declare myself an advocate of the doctrine that guano is a "mere stimulant," yet I do declare my belief emphatically, that it is an *over* stimulant of plant growth.†

He gives us a statement of what guano contains, notably: ammonia, phosphoric acid and potash, but fails to tell us the quantities of each. Good guano should contain 15 per cent. of ammonia, but does not generally contain more than 10 per cent. even when pure, and often much less; perhaps 3 or 4 per cent. of phosphoric acid, and 2 or 3 per cent. of potash. Prof. Morfit says, that a good fertilizer should contain phosphoric acid, potash and ammonia in the proportions of 7, 9 and 4.

Now a fertilizer containing a large proportion of ammonia, forces the growth of plants, and exhausts the stores of potash and phosphoric acid in the soil, which the fertilizer fails to supply, and in the

course of a few years, these stores fail and the soil becomes exhausted.

Allow me to suggest,

800 pounds,	Dissolved Bone Ash, costing,	\$14 00
350 "	Muriate Potash, "	7 87½
850 "	Guano, (Guanape), "	25 50
		<hr/> \$47 37½

Yielding about 8 per cent. of phosphoric acid, about 9.5 per cent. of actual potash, and about 4.25 per cent. of ammonia.

Edinburg, August 18th, 1875.

D. W. PRESCOTT.

* NOTE BY THE EDITOR.—The human system and the soil are alike in many respects. The elements in both have been arranged by Providence, not by us, into machinery with the ability to do perfect work: but, if not properly looked after, it is liable to derangement and failure. Experience shows us that the "constitution" of the man must determine how best he should be fed and cared for, to make his powers the most serviceable, and when he is sick, what remedies are best to secure his recovery. So in respect to the soil. The chemists' analysis determines nothing absolutely; and in practice we find that we must try, by experiment, what will best suit its "constitution." The conclusion of our correspondent is, therefore, to our mind, a correct one.

† *IBID.*—As exceedingly interesting in this connection we present an extract from the "money article" of the "*London Times*," of the 5th August ulto.:

"We have been favored with a sight of some private letters by the Captain of a vessel sent out to the Peruvian coast to load guano. They are dated in May and June, and give a very interesting, evidently true, but also disastrous account of the state of affairs there. It would seem that the good guano is exhausted at Pabellon de Pica, and what the vessels had to take in was mixed with stones and gravel to the extent of from 20 to 50 per cent. The engineers in charge were burrowing and blasting among the rocks in search of more guano, said to be under them, and to supply the ships with this dross, the rocks were also being swept. Over 100 vessels had arrived off the coast, (there is no harborage it would appear) and some of them had lain three months waiting for their loads, unable to get an ounce of guano to put on board. Some ships refused to take in such rubbish unless on the responsibility of the government contractors. Dreyfus & Co., who it is rumored had obtained a discount of 40 per cent. on the remainder of their contract, in consideration of the dross they had to take, stood passive in the matter. Many ships had gone to another part of the coast called Lobos Point, seven miles from Pabellon de Pica, where guano was said to be plentiful, but there they fared even worse than in the old spot. In the first place, they had to lie in open water 40 to 50 fathoms deep, where the swell was so heavy that the lighters, out of which they loaded, were continually getting smashed, and ships themselves losing anchor and chains. The writer of these letters was told by a brother Captain who had been at Lobos, that fourteen anchors and chains were so lost in a fortnight, nor was there any compensation for these evils, the guano at Lobos being as full of stones as the other. We have heard many statements to the same effect lately, but here we have the testimony of men actually on the spot, and at this juncture it is impossible to overrate its importance."

[For the Southern Planter and Farmer.]

GREEN FALLOW.

It is now the season of the year when farmers begin to fallow land for wheat. Some have already fallowed, and the opinion prevails here that the earlier it can be done the better. The last of May, or first of June, would be preferred by some of our farmers if other business did not interfere. The object of this communication is to report an accidental experiment I made last year. I had a field divided between wheat and oats, and after the wheat was cut, the chinch-bug, which had nearly destroyed the wheat, turned to the oats, and in order to retard their movements I took two-horse turn plows and plowed a strip of the oats under, some thirty feet wide, and the plowing had the desired effect, it effectually stopped them until the oats got ripe. In the fall I fallowed the whole field and sowed it in wheat. The strip of course was re-fallowed. The whole crop was an indifferent one. I supposed I would see some difference where the oats were turned under, but there was no perceptible difference; but I was surprised in passing over the field the other day to see little or no green grass, weeds or anything else spring up on that strip. The wet season has been most favorable to the shooting up and growth of vegetation on all stubble land, but that strip is naked, and the very line may be traced by the eye from one end to the other by its nakedness. Now, how is this to be accounted for? Was it an accidental result, or was it a legitimate result from an adequate cause? I conclude that being plowed about the first of July, the sun scorched the life out of it, so that it has not yet recovered, if it ever does. This opinion is strengthened by another circumstance: A neighbor of mine fallowed a field early last year for wheat, and it was good land, and his crop at the last harvest, which ought to have yielded a hundred bushels, is estimated at fifteen. I do not know what crop he had on the field previous to the fallow, but I think it was oats. I have been accustomed to fallow oat stubble for wheat, but I am not pleased with the result. The crops of wheat have invariably fallen short of my expectations, taking into consideration the known quality of the land. Am I right in this? Is there anything in the oat that is detrimental to the growth of wheat? The season in this region for the last crop of wheat was not favorable, there was little or no snow during the winter, and the spring was cold and dry, so that the wheat did not grow and branch out as it usually does, and a great deal of wheat was then on the land in consequence; but the quality of the wheat that is made, is unusually good. This, however, does not account for the difference between an oat stubble fallow and a sod fallow. If you or some of your correspondents will give us information on the points I have raised, you will much oblige me, and perhaps promote the public interest.

S. M. SHEPHERD.

Greenwood Depot, August 2d, 1875.

NOTE BY THE EDITOR.—Why the strip in which the oats had been ploughed

behaved in the manner it did, we confess is more than we can explain. However, as throwing some light upon it, we submit the conclusions of Dr. VOELCKER, in the exhaustive examination he made of the *Clover* plant, as a preparatory crop for wheat, recorded in the transactions of the Royal Agricultural Society of England, year 1868:

"1. A good crop of clover removes from the soil more potash, phosphoric acid, lime, and other mineral matters, which enter into the composition of the ashes of our cultivated crops, than any other crop usually grown in this country.

"2. There is fully three times as much nitrogen in a crop of clover as in the average produce of the grain and straw of wheat per acre.

"3. Notwithstanding the large amount of nitrogenous matter and of ash constituents of plants in the produce of an acre, clover is an excellent preparatory crop for wheat.

"4. During the growth of clover a large amount of nitrogenous matter accumulates in the soil.

"5. This accumulation, which is greatest in the surface soil, is due to decaying leaves dropped during the growth of clover, and to an abundance of roots, containing, when dry, from $1\frac{1}{2}$ to 2 per cent. of nitrogen.

"6. The clover roots are stronger and more numerous, and more leaves fall on the ground, when clover is *grown for seed* than when it is mown for hay; in consequence, more nitrogen is left after clover seed than after hay, which accounts for wheat yielding a better crop *after clover seed* than after hay.

"7. The development of roots being checked when the produce, in a green condition, is fed off by sheep, in all probability leaves still less nitrogenous matter in the soil than when clover is allowed to *get riper* and is mown for hay, thus, no doubt, accounting for the observation made by practical men that, notwithstanding the return of the produce in the sheep excrements, wheat is generally stronger and yields better after clover mown for hay than when the clover is fed off green by sheep.

"8. The nitrogenous matters in the clover remains, on their gradual decay, are finally transformed into nitrates, thus affording a continuous source of food, on which cereal crops specially delight to grow.

"9. There is strong presumptive evidence that the nitrogen which exists in the air in the shape of ammonia and nitric acid, and descends in these combinations with the rain which falls on the ground, satisfies, under ordinary circumstances, the requirements of the clover crop. This crop causes a large accumulation of nitrogenous matters, which are gradually changed in the soil into nitrates. The atmosphere thus furnishes nitrogenous food to the succeeding wheat indirectly, and, so to say, gratis.

"10. Clover not only provides abundance of nitrogenous food, but delivers this food in a readily available form (as nitrates) more gradually and continuously, and consequently with more certainty of a good result, than such food can be applied to the land in the shape of nitrogenous spring dressings."

As the juices of green fruit, being immatured, are unwholesome to the human economy, while nothing could be more wholesome when matured, it is not unreasonable that the same principle should operate in the case of fallows intended for the sustenance of the wheat crop. If the conclusions arrived at by Dr. Voelcker teach anything, they show conclusively that *any fallow* relied upon to feed the wheat crop, *must be matured* before it is turned in.

In the matter of the oat crop, as an antecedent crop to wheat, we have not space to do more than submit, side by side, the composition of air-dry wheat and oats (seed, chaff, and stalk), as ascertained by WOLFF, a thousand parts of substance being taken as the basis:

CROPS.	Water.	Ash.	Potash.	Soda.	Magnesia.	Lime.	Phosphoric Acid.	Sulphuric Acid.	Silica.	Chlorine.	Sulphur.
OATS—Seed	140	26.4	4.2	1.0	1.8	1.0	5.5	0.4	12.3	.....	1.7
Chaff.....	143	79.0	10.4	3.8	2.1	7.0	0.2	2.0	47.3	.....	.....
Stalk.....	141	44.0	9.7	2.3	1.8	3.6	1.8	1.5	21.2	.....	1.7
WHEAT—Seed.....	143	17.7	5.5	0.6	2.2	0.6	8.2	0.4	0.3	.....	1.5
Chaff....	138	92.5	8.4	1.7	1.2	1.9	4.0	.....	75.1	.....	0.8
Stalk... ..	141	42.6	4.9	1.2	1.1	2.6	2.3	1.2	28.2	.....	1.6

It will be observed that oats draw heavily of everything needed by the wheat in a solid way.

[For the Southern Planter and Farmer.]

“DOES FARMING PAY”—AGAIN.

Some time ago I wrote a series of short articles for the *Planter and Farmer* upon the proposition, “Does farming pay, and can we afford to hold our lands,” the object of which was to present a more encouraging view of our situation and to quiet the gloomy apprehensions indulged in by many of our farmers.

In those articles I suggested that when we have a surplus of land we might combine stock-raising with grain and grass-growing, and also the propriety and necessity of paying more attention to making and sowing domestic fertilizers. I also suggested that we should adopt a system suited to our own particular circumstances and condition, and then go to work energetically, systematically and economically, and we would, under God’s blessing, hardly fail of success. I wish to add one or two more suggestions.

The first is, that the farmers should generally cultivate a variety of crops. We are forced to do so by the great variety in the soil we have to cultivate; some of our lands, and sometimes whole farms, are not naturally suited to the crop we might desire to cultivate; we should then cultivate such crops as are suited to our soil.

We set it down as a rule from which there should be but few departures, that the farmer should raise his own supplies at home. We hear persons say, we can’t afford to raise corn and bacon. It is clear to my mind that the farmer cannot afford to buy them. It is easy to assume figures and make our calculations, that we can’t afford to raise these things, and it is equally as easy to assume figures and prove that we can. I think it is an approximate estimate, that upon average land, say land that will produce four barrels of corn per acre, the cost of production will be from one dollar to one and a half dollars per barrel; this we can afford. I think further, that the following estimate approximates the cost of raising pork. Feed

to a hog $1\frac{1}{2}$ barrels of corn or meal until he is eighteen months old, which would be about two good ears per day. Then use $1\frac{1}{2}$ barrels in fattening him, and he will probably weigh about 180 pounds. We can afford this.

My observation is that the most successful and thrifty farmers are those who raise not only their supplies but a surplus for sale.

Then, again, the farmer should have some variety of crops. Such is the variety of soils, and seasons as well, that it is not safe to rely upon a single crop. If the farmer have lands adapted to wheat, let that be his chief crop, but let him have some other crop to fall back upon in the event of a failure, partial or entire, in his main crop.

Again, the farmer should have a variety of crops in order to give employment to the laborers during the cropping season. We would suggest also, that the small crops have been too much neglected. Whilst we find but little sale for Irish potatoes, turnips, cymplings, pumpkins, &c., they may be used very advantageously at home feeding stock, thus saving expense in stock-feeding, and at the same time making the stock more healthy and thrifty. Take cymplings for example; one acre of bunch cymplings, if they succeed well, will afford supplies for from 50 to 75 hogs, diminishing by one half the corn to be fed to them during the cympling season.

Irish potatoes may be advantageously fed to hogs if they are cooked and a small proportion of meal added. I think I am raising potatoes at a cost of not more than 30 cents per bushel.

Turnips contain but little nourishment, but they do contain some saccharine matter, especially the ruta бага, and they constitute a cheap and valuable food for winter-feeding when stock need succulent food, and are especially valuable for sheep and milch cows.

Inglewood, Aug. 19, 1875.

C. Q.

[For the Southern Planter and Farmer.]

BLOODED CATTLE.

In this country, the Short-horn, as yet, is almost the only cross which has been used for the exclusive purpose of breeding steers for beef. For work oxen, we have only the Devon and Herefords. So for the shambles, we have only the Short-horns, Herefords and Devons. The Jerseys are no feeders, and make poor beef when fat, but are peculiarly adapted to the dairy; while the Ayrshires have no qualities as feeding animals, yet they are good milkers, and make a good cross on our common stock. The Herefords have not been very extensively introduced into this country, and the first importers of Devons turned their attention entirely to the development of their milking properties. Yet, in England, the feeders, who are seldom breeders themselves, admit the superiority of each in its proper place, and select their steers from whichever breed is best suited to their particular soil and location.

In looking up the merits of these breeds under the several heads which have been pointed out as necessary to be taken into consideration in the choice of breeding animals, the first is adaptation to fatten. This is what a feeder looks for in an animal. What breed will make the most beef from a given amount of food is the best. Yet, under different circumstances, each breed will have the advantage. No breed will bear stuffing so well as the Short-horn. They are large eaters, and naturally lazy; so when they have only to fill themselves and lie down, they are placed under the most favorable circumstances. The Herefords, being more active, travel about with more ease to themselves. For this reason, a great many of the feeders in England hold the same opinion as to the relative merits of Short-horns and Herefords on this point.

A writer in the *Mark Lane Express* says: "Having for many years fed well-bred oxen of both breeds, and feeling confident that I have no partiality in favor of one breed over another, I repeat here what I have said on former occasions, that for grazing I prefer the Herefords; but for stall-feeding, the Short-horn has no equal. For short pasture, again, the smaller, more hardy and active Devons will do much the best—laying on flesh where either of the larger breeds will not hold their condition."

On this point, the English feeder is quite as applicable here as there; and it would appear to show that, taking the same amount in weight of each breed, and putting them into scant pastures where they will have to travel over a good deal of ground to get their food, the Devons will increase the fastest.

As regards early maturity and actual weight, the Short-horn undoubtedly stands first, though the best Herefords push them pretty hard in both respects; and the Devons are improving very rapidly in the first point—steers of this breed being now got to a good weight, and made fit for market at three years old. The grain of meat is finer in small animals than in large. It is said that the little sheep of Wales are the finest mutton in the world—a leg of which does not weigh over six or seven pounds. The same is true with regard to pigs and cattle.

Epicures in England will seldom eat any beef other than that of Devon. We should, therefore, naturally expect to find the Devons excelling in this country in this point, as in fact they do.

In looking over the quotations of the London cattle market, I find prime large oxen from 4s. 4d. to 5s. per stone of 8 pounds; prime Scots and Devonshires from 4s. 8d. to 5s. 6d. per stone—showing a difference of from two to three cents per pound in favor of the smaller breeds. The fat and lean are better mixed on the Devons than either the Herefords or Short-horns. When we look at the broad backs found among all three of these rival breeds, it will be difficult to say which of them has the advantage in breadth of hips, in proportion to their size. The width is carried forward better in the Devon than in the Short-horn, while the latter is

broader between the hips—giving the Devon the superiority in the ribs and the Short-horns in the round and rump. The Herefords may be placed between the two in both points—the bone of the Devon being the smallest, and that of the Hereford the largest. I would recommend the Short-horn cross for beef in those parts of the country where the climate is most moderate, and forage of all kinds is cheap and abundant. Farther North or farther South, where the winters are severe and grain scarce, or where the intense heat of the summer dries up the pastures, the Devon will be found the most profitable, while the Herefords may be said to occupy ground between the two.

Each breed has its own peculiar good qualities in which it excels. Our country is large, and embraces every variety of soil and climate. We have room for all. With sheep, I will say I think the Leicesters may be termed the Short-horns of sheep, while the South-downs are the Devons.

Louisa County, Va.

F. W. C.

[For the Southern Planter and Farmer.]

SHEEP RAISING.

In your capital No. for August, I see an editorial note of disbelief under the Marylander's account of the English flock-master's annual sheep profits. Eighteen hundred pounds does seem a large sum, especially when derived from Dorset ewes and early lambs, the rearing of which entails a lot of housing, extra feeding, &c., but I know of several sheep men in my own county who strike quite as satisfactory a balance sheet by the breeding and grazing of well-bred Leicesters. The men I refer to have rendered Yorkshire famous for this grand product of skill and energy in the science of breeding. Not to trespass on your space with any remarks on the rise and progress of the Leicester, I will name in the front rank of their improvers Messrs. Singleton, Barton & Wiley, who have certainly gained as good pecuniary results as the Aston Rowan flock-master. Mr. Singleton, of Govendale, from his 180 ewes, lets from 50 to 60 leaps for the season at an average of £15; his cull ewes, fat wethers and wool will make more than as much again. Mr. Barton, of Barton, stands par excellence in Leicesters. It is no uncommon thing for him to let a ram for £40, sometimes for £50. His selling trade spreads over the continent of Europe, and the receipts from his flock of 150–170 ewes surely exceed the amount mentioned in the article "Sheep Did It." The veteran Mr. Wiley, of Brandsby, is another instance of what good sheep can do. His name is well known as a breeder of first-class animals among the Short-horn men of this continent, but through his long career Leicesters have been his specialty, and by means of those admirably named sires, Carcass, Symmetry & Co., he has, perhaps, done as much for their improvement as those great lights, Bakewell, Buck-

ley & Burgess. But for fear of being tedious, I could name many other first-class men, for their fame and prestige is dear to me from home associations, and as a lover of all well-bred stock.

In conclusion, may we all soon see the day when good Leicester or other blood has so improved the sheep in Virginia that our graziers' pockets may vie with the plethoric ones of the jolly yeomen I have named, and the Virginia farmer *may* address his wife in the words of the poet with some chance of his appetite being gratified :

"A plain leg of mutton, my Lucy,
I pr'thee have ready at three;
Have it tender and smoking and juicy,
And what better meat can there be?"

R. J. F.

[For the Southern Planter and Farmer.]

TUCKAHOE FARMERS' CLUB.

The Club promptly assembled to-day at the farm of Maj. J. B. Harvie, Jr.

The subject of the "trespass of stock" running at large, was first discussed, with different views as to the means to be adopted for our protection, by Dr. Pollard, Mr. Robinson, Maj. Howard, Maj. Harvie and your reporter. All agreed in the necessity of our protection in this important matter, and only differing in the mode of procedure to attain that end.

Finally, a resolution to the following effect was offered by your reporter, and adopted by the Club unanimously, which provides, "that in all cases of unlawful trespass of stock, the present law should be at once amended, so as to provide that the party so trespassed upon and injured have the legal right to *hold* and *retain* the said stock in his custody as a security for, and not to be removed, until the damages assessed by law are met and fully paid." A committee was then appointed to wait upon our representatives in the legislature. (and we hear that there are several ready to *consent* to take the burthen upon themselves. How many of them will care for the interest of the farmer?) Still our committee will beg of them this protection.

Herewith I hand you Mr. Jas. A. Cowardin's admirable paper on the economy of the grasses, read by him to the Club at this meeting. It is clear, strong and emphatic, and requires no comment at my hands. It plainly speaks its own value, and, I think, well deserves the space required in your columns.

The thanks of the Club were cheerfully given Mr. Cowardin, for the time spared by him in our behalf.

Yours, etc.,

J. A. LYNHAM, Reporting Secretary.

Henrico county, Va., August 12th, 1875.

The following essay was delivered by Mr. J. A. Cowardin, Senior Editor of the *Dispatch*, before the Tuckahoe Agricultural Club, and at our request was furnished to us for publication :

GRASSES.

Gentlemen,—I assure you that no one could be more thoroughly satisfied than myself that I am incapable of teaching anybody about the cultivation of grass. I almost suspect that my young friend who moved that I be requested to say something about grasses meant to play off a joke upon me, and I venture with some misgivings to take up a small part of your time, fearing that there will be nothing to compensate you in what I may say. If, indeed, I could give instruction it could be said of me as was said of old Tusser, that while he could counsel others, he himself could never as a farmer thrive. Nevertheless, I imagine, gentlemen, I shall do you a service in enabling you to feel exceedingly capable by contrasting your knowledge with my ignorance.

I know little of the cultivation of grasses, and almost as little concerning their different qualities. Of several hundred varieties, the agriculturists have settled upon a few as the best, and beyond these few in this country nobody seeks other species for cultivation. It is not a part of my purpose to speak of these. I will merely speak briefly of the place that the choice grasses and hay occupy in the economy of agriculture, and that domestic economy of the farmer's home, which, rightly and industriously administered, makes that home more like Paradise than any other earthly dwelling place.

It must be confessed that in tidal and tobacco-growing districts of Virginia the grasses have been neglected. In Piedmont the attention to them has been better, and in the Valley hay is a cardinal crop. In the rotation of cropping in tobacco-growing Virginia, as well as the tide-water, the important part that should be performed by grass has been poorly filled. The late Edmund Ruffin, in his *Farmer's Register*, Vol. VIII, gave the following as the earliest effort of farming at a rotation :

First year—Corn.

Second year—Wheat, or oats, if on land too poor for wheat. After harvest grazed closely till spring, when ploughed for corn again.

The rotation was very slowly improved. The next step was a third year which devoted the field cultivated in wheat the second year to pasture closely grazed ; pretty severe treatment.

Finally, Col. John Taylor, of Caroline, advanced to the fourth year as follows :

First year—Corn.

Second year—Wheat and clover sown, or if too poor for wheat, left at rest not grazed.

Third year—Clover (or weeds) not mown or grazed.

Fourth year—Clover not mown or grazed.

This system required a plenty of land, and after all the system

was very primitive, a falling back almost wholly on nature. But Mr. Ruffin justly says the two years and a half out of four devoted to vegetation that was to grow and rot in the ground, made the rotation "decidedly meliorating." The land had rest, which is vastly better than no rest and little manure.

This Col. Taylor, the "Arator" amongst agriculturists, was an advanced and enlightened farmer, and instructor of his class.

Somewhat later a better rotation was practiced by Hill Carter and some of the best farmers of lower James river. It was :

First year—Corn.

Second year—Wheat and clover sown and not grazed.

Third year—Clover not grazed and ploughed in deeply in August and September, and the field sown in wheat.

Fourth year—Wheat to be followed by corn, the rotation next year.

But Mr. Ruffin objected to this, that there were none but admirable farmers who could possibly overcome the great difficulties of this rotation. I take for granted that each of you, gentlemen, is exactly this kind of farmer, and would triumph over these difficulties. It is exactly this fall fallow that is one of the grandest things in farming, in my opinion, which I fear is worth little.

Since the day of this improved system, with difficulties besetting it which the sage and venerated Ruffin thought most serious, I fear there has been no great advance in the cultivation of grasses in the interesting district which, I suppose, you understand me to be speaking of. Mr. Ruffin, in 1840, said: "Every well informed farmer will agree to the importance of there being more meliorating crops introduced into our rotation—more grass, peas, roots and broad-leaved vine crops. But the objection always is to making crops for which there is no sale or market demand. But suppose there is no direct sale and money profit made from hay or roots, they will yield as much profit by being used to feed and fatten (not merely to keep alive) the necessary farm stock, and thus allow to be sold the corn and other grain which would be otherwise consumed by animals with less relish and less benefit.

"While roots are totally wanting in our rotations, one important office is left unfilled, that is, the deep piercing of the soil, and thorough opening of it by tap-rooted and tuberous-rooted plants. Another thing wanting, is the ploughing under of pea or other annual green crops, to cleanse as well as to manure the soil. These properly introduced, and the grain crops separated by green crops, would produce rotations far more improving to the land than any yet known, and probably as much better for earning annual income (mark this!) as for improvement of the land—the farmers best capital."

I think, gentlemen, you will thank me for bringing to your attention this quotation from the writings of one of the most accomplished farmers I have ever known. After he wrote these wise opinions

guano was introduced into Virginia agriculture. It has facilitated the system of tillage; but has it changed it? not a great deal, I fear. The farmer who to-day relies upon guano, and discarding the sage advice I have quoted trusts altogether to guano, will soon be the Crusoe of an exhausted territory. But if he puts in the improving crops with the fertilizer and turns them under, the fertilizing stimulant will be held with something like durability, and that which otherwise would be volatile, temporary and exhausting, will be converted to a lasting benefit.

Further than this, my poor experience cannot be carried with anything like detail. I believe there is a place for grasses and for leguminous plants, and root crops in farming—a place in which as improvers of the soil they are invaluable. I furthermore believe that they are indispensable to good farming and good domestic economy in the farmer's life.

Let me here remark that our soil and temperature make the successful cultivation of grasses more difficult than it is in higher elevations and in limestone districts. That we can by care and forecast have good meadows I have not a doubt. But the disadvantages under which we labor should only sharpen our wits and induce us to adopt every conceivable plan to accumulate hay for winter. It is an old custom with us to rely upon corn fodder, the most costly hay ever known. In the valley and mountain regions they cut up the corn by the stalk when the corn begins to glaze. I know that corn so cut up while the stalk is green affords the most palatable and nutritious long food for cattle. The blades, the shuck and the stalk are all highly nutritive. Cut up and fed with a little salt it is better than hay for cattle. It is nearly all devoured.

Now instead of saving all this food by cutting the stalk at a single blow, we pull fodder with one operation and we cut the tops with another, taking a world of trouble to gather what is not so good nor in such abundance as would be the entire stalk cut up with the greatest ease—an operation nothing like so laborious as pulling fodder.

I know it is said that the occupations of the farmer in this section are such that he can't find the time to save the whole stalk. I think there is some mistake here. The farmer that finds time to pull fodder and cut tops can, I should think, at least find time to cut up his corn. If he can't I confess I am sorry to hear it; for unquestionably in a country where hay is so scarce, it would be a desideratum to save the vast amount of long food that would be secured by cutting up the green stalk: by cutting it up at time when the corn itself is at its zenith of accretion, when, should it stand longer, it steadily loses weight by the descent of the saccharine matter into the stalk until the reflux current is checked by crystalization. I have no tests of this matter before me, but I believe that it is true.

Besides looking to accumulate hay for winter food, the employment of the grasses that spring forward early and afford the best

food for soiling should be an object. Lucerne with several other grasses answer this, and first of all is clover, that grand plant that contributes so largely to the improvement of the soil and so very materially to human happiness. It is an excellent soiling crop. It inspires the land with heart and energy that with proper culture endures, and like the legacies that fall to prudent men, shows itself long after the testator is dead in the earth. Like the actions of the just these clover legacies smell sweet and blossom in the dust.

The provident farmer will see that there shall be enough of winter food, or that there shall be no more animals than can be supported well with what he has. He will also provide shelters, and means of feeding that the food may be fed to advantage.

1. He will have his stables and cow houses sufficiently near his dwelling to enable him to superintend them.

2. He will see that the stock is good and worth feeding, and that there are no useless animals about. Good stock pays and is a source of pride. Bad stock don't pay, and I never saw anybody proud of it.

3. The houses, and the ways to them and manure pits are, if the farmer be wise, arranged to the best advantage for attendance and care of their keepers, and for dryness and general economy.

With this system, animals may be well and comfortably kept, and will appear in spring in good flesh and health—one thrifty cow or steer being worth a half dozen stunted and neglected cattle after passing through the trials of winter.

I will draw a picture of winter economy that has been too often pursued in Eastern Virginia, and I think you will hardly think it exaggerated.

There were a number of animals upon the farm, greatly in excess of the means at hand for their winter support. Many were driven to shift for themselves. Have we not seen them on a windy day shivering in the breeze, looking like frames on which flesh was to be put at some time or other, peering most anxiously among the dead stalks of corn that whistled in the wind, to see whether there was not a shuck or a shield still clinging to the stalk after the hundredth search. We know the vigilant scrutiny of the magnificent ox eye, and when we see that a bit of blade has been gathered by the searcher, we wonder how it escaped former reconnoissances!

Have we not all seen such? Have we not beheld the long line of "tails" turned out from the barn yard (where they have been at night) marching their weary march to the oft-hunted and traversed fields of last summer's crops to eke out if possible a subsistence. Evening comes, they are driven to the miry pen to stand in muck or lie down chilled and hungry upon the ragged edge of the pit, there to doze out the night in the hopes of snatching a nap, neath to-morrow's sun, in the dry pine woods! The milk maid goes to milk the cow and carries a bucket of slop for her. Hemming poor "sukey" in a dry corner, if one can be found, she milks from her a quart of milk as the poor animal voraciously swallows that bucket full saved

for her alone, while the eyes of the whole barn yard are turned upon her with a sensitive envy ; for the cow kind is too gentle for malice.

It is a hard duty these poor animals have to perform—that of blending their own faeces with mire of the pen in which they wade, often chilled almost to death. Look at them in the spring, when turned from the farm pen to seek subsistence on the young buds just bursting in the forest. The procession headed by the Sultan, and having for its tail the calves, has a funereal aspect. They seem to be going to lay down their bones in peace. It would be hard that they should be robbed of the glorious summer time, after they have richly earned it by their winter's miseries. But it might be better than that they should encounter another like it. Contemplate the bovine starvelings; the buzzards hovering over them, while with their rickety and feeble steps they wend their way on their budding expedition, from which some may not return. Fresh buds are often fatal to empty stomachs. Their melancholy would seem to forebode some calamity. It is thus they leave that interior home where should be peace and plenty, to seek support and beneficence in the forest.

This sort of husbandry is as shameful as it is profitless. What are such animals worth? Compare with them the cattle that are sufficiently fed and protected during the winter. One good steer of this well-to-do stock is worth a whole herd of such starvelings. If you have a beef that is thus cultivated, he will likely draw not less than a thousand pounds, and as for the little wretch that is raised in the "farm pen," that in face is a four year old behind a calf, who would be so bold as to bring him to the scales at all.

One system is waste and cruelty, the other thrift and kindness. It is not in the treatment of animals and the general exterior order that the contrast is most perceptible. It is in the household economy. The table of the farmer is so well supplied and so inviting—there is the golden butter and the abundance of fresh milk. Good bread and good coffee must appear where the delicious products of the dairy are spread before the guest. Here we have the elements of good and refined living. Hospitality and bright cheerful life go together in the home where prevails order and good housewifery, the whole surroundings of the homestead display the comfort and serenity that are secured by a careful husbandry. The providing of plenty ; the general thrift ; the absence of ugly signs of want and neglect.

As I understand the farmer's life, I would say that in the proportion to scarcity, and the want of variety of food for man and beast, will be the appearance of want, discomfort, slovenly husbandry and housekeeping, and the waning of refinement and domestic virtue. Whereas, if we contemplate the well supplied farm, with its hay, its root crop, its fruit all well under shelter and well preserved, we understand at once that comfort prevails, that things are in order, that most happily for our changed social system, the condition of that farm is the very best for making available the helping of the whole household. Even one of the ladies of the family may whip on an

apron, and hurrying to the well arranged cow-house, may draw a foaming pail of milk from distended udders, and bring her rich spoil to the dairy without staining her garments and with positive benefit to herself. The order of that is marked by every sign of diligence, tidiness, order and serenity. Are not these the proofs of growth in civilization and virtue? And need I ask if this does not come from that proper tillage that provides for life upon the farm, upon humane principles, and with a proper regard for health and happiness? In this way the tiller of the soil not only derives his greatest joys, but his most solid rewards.

[For the Southern Planter and Farmer.]

REPORT ON THE EXPERIMENTAL FARM OF THE UNIVERSITY OF VIRGINIA.

In accordance with your request, I herewith submit a Report of the experiments conducted on the "Experimental Farm" of the University, on the cultivation of wheat, during the years 1872-73-74-75. It is proper for me to state, that, in my judgment, these experiments have not been continued sufficiently long, or repeated often enough, to be of much real practical importance. Important facts in agriculture can only be obtained by patient observation and experiment, and a careful study of the relation of cause and effect, in order to avoid "the ignorance of cause, that frustrates effect." The aphorism "that nature is best subdued by submission to her laws" applies with full force to agriculture; and I think that you will agree with me, that a certain length of time and a recurrence of seasons are necessary factors to establish the safest rule of practice in Agriculture—the rule of enlightened experience. Feeling satisfied of the correctness of this course of action, I announced, when I assumed the chair of Natural History—Experimental and Practical Agriculture in the Institution—that I did not desire to publish any experiment, or to induce any one to spend time or money in following my example, until I had sufficient time to verify the results of my experiments, during a period of at least five consecutive seasons. It will be proper for me to state also, that the land selected for experimental purposes was taken, by the gentlemen in charge at the time, chiefly, because of its location near the railroad; and on account of the extremely barren and impracticable nature of the soil, in order to show what might be done with even the most impracticable subject. One-third of the land selected was a morass, the surface soil of a greater portion of which had been taken off to make a railroad embankment. The remaining two-thirds comprised an area of shrubby wet land, and rocky, gullied hillsides, from which, during the months of March, April, May and June, 1872, the "Farm Record" states, were taken, over 418 wagon loads of rocks. I make these statements to show that the time has not only been too short to gain much practical knowledge from the experiments, even in a fair sample of soil, but on such a subject of much more doubtful value.

EXPERIMENT 1, October 5th, 1871-2—*Two plots of land were sown with new varieties wheat known as Fultz and Touzelle white winter wheat, obtained from the U. S. Department of Agriculture; the latter variety having been imported from France. One plot contained one-half acre, and the other, one-fourth of an acre. On the larger plot Fultz wheat was drilled, at the rate of one and a half bushels per acre, without any fertilizer. On the small plot Touzelle wheat was drilled*

on the same day, also without fertilizers, at the rate of three pecks per acre. The "Farm Record" states, that on the 26th of March, 1872, the rocks were gathered off and the following fertilizers were applied, at the rate of 300 pounds per acre, as a *top-dressing*, viz: On one-half of the larger plot in Fultz wheat, *Nitrate of Soda*, and on the other half, *Sulphate of Ammonia*. The same was done with the smaller plot in *Touzelle wheat*. The total yield of the larger plot, was at the rate of $4\frac{3}{4}$ bushels per acre: of the small plot two bushels and four pints per acre. The part of the larger plot in Fultz wheat, top-dressed with *Nitrate of Soda*, yielded at the rate of $3\frac{3}{4}$ bushels per acre, and the part dressed with *Sulphate of Ammonia* yielded 3 bushels per acre; the wheat weighed 60 pounds to the bushel, showing a difference at the rate of 3 pecks per acre in favor of the part fertilized with Nitrate of Soda, and 80 pounds more of straw from the Nitrate of Soda than from the Sulphate of Ammonia. The "Record" also states that the part of the plot sowed with Fultz wheat and top-dressed with *Nitrate of Soda*, ripened, and was cut seven days earlier than the portion sowed with *Sulphate of Ammonia*, while the two parts of the small plot sowed with *Touzelle*, and dressed in the same way with *Nitrate of Soda* and *Sulphate of Ammonia*, ripened at the same time, and was cut nine days after the first Fultz. In the "Farm Record" of this year, there is no mention made of the season, or whether the wheat was affected by insects, rust, smut, &c. The top-dressing in spring with Nitrate of Soda alone, was very common in England many years ago, but was discontinued for some time, in consequence of its tendency to make the wheat "fall," and to produce mildew. It appears now, that these two serious faults have been corrected by mixing with the nitrate a moderate amount of sea salt, which prevents the mildew and strengthens the straw. In Norfolk, England, the practice of top-dressing the wheat in spring is almost universal with the best farmers, at the rate of 100 pounds nitrate of soda mixed with 200 pounds of salt applied in two dressings at intervals of three weeks or a month, beginning early in March, and ending about the 20th of April. Mr. Pusey's experiment with this mixture, used as above stated, show an increase of $8\frac{3}{4}$ bushels of wheat, more than that produced on land otherwise similarly treated, but not top dressed with the mixture. I propose to repeat the experiments of 1871-2 this fall.

Cereal year commencing September, 1872, terminating July, 1873 :

The experiments made with wheat—four varieties—sown on six plots, with the same fertilizers.

EXPERIMENT (1) 1872-73.—*Tappahannock wheat*; seed from U. S. Department of Agriculture; one-fourth of an acre plot; sloping to the west; soil gray, shall low, mixed with flint rocks, very poor; in corn the previous season; Sept. 20th, ploughed; Sept. 26th, harrowed; Oct. 1st, a seam made with a double-shovel plough, to receive the seed; *Tappahannock wheat* at the rate $1\frac{1}{2}$ bushels per acre was sown, and the following fertilizers also sown by hand: *English superphosphate* made from English corrolites (Flannagan's) at rate of 400 pounds per acre; potash, 100 pounds; and sulphate of ammonia, 50 pounds per acre; sowed and harrowed in with the wheat, which came up and progressed favorably during the winter. April 8th. sowed *red clover seed* at rate of 8 pounds per acre; and plaster at rate of one bushel per acre.

May 1st. discovered Hessian fly in various stages of development. making fearful ravages, in spots or areas of 4x6 feet, where the soil was of a lighter gray color; more compact and less rocky, indeed, poorer. May 10th, the wheat headed

out; June 17th, cut with a scythe and cradle; Sept 6th, threshed. *Yield of wheat*, 2½ bushels, or 9 bushels per acre; weight per bushel, 60 pounds; *straw*, 200 pounds, or 800 pounds per acre; *chaff*, 55 pounds, or 220 pounds per acre.

Value of crop (including straw and chaff.)

Value of crop.....\$4.60 or \$18.40 per acre.

Expenses of crop.....7.03 or 28.12 “

Loss.....\$2.43 or \$9.72 per acre.

The expenses are recorded and are estimated as follows (over, rather than under, valuation):

Ploughing.....	\$.75
Harrowing.....	.25
Seed .....	.63
Superphosphate, 100 pounds, at \$2.75 per 100 pounds.....	\$2.75
Potash, 25 pounds, at 4 cents per pound.....	1.00
Sulphate of Ammonia, 12 pounds, at 5 cents per pound.....	.60
Sowing fertilizers.....	.25
Cutting and bundling wheat.....	.50
Threshing.....	.30

\$7.03

There was no rust or smut; the stand of red clover was very good. Injury from Hessian fly much greater than that inflicted on any other variety of wheat.

EXPERIMENT (2) 1872-73.—“*Touzelle winter white wheat*”—seed from “U. S. Department of Agriculture, imported from France; one-fourth of an acre plot; soil and exposure very nearly the same as that of last experiment with *Tappahannock wheat*; in Indian corn the previous season. Sept. 20th, ploughed; Sept. 26th, harrowed; Sept. 30th, a seam made with the double shovel plough; and *Touzelle wheat* sown at rate of 1½ bushels per acre. “Superphosphate” (same as in last experiment), 400 pounds; potash, 100 pounds; and sulphate of ammonia, 50 pounds rate per acre, all harrowed in at the same time with the wheat. April 8th, sowed with red clover seed, at rate of 8 pounds per acre; plaster at rate of one bush. per acre. May 1st, affected slightly by Hessian fly. Badly injured by rust; ten days later than the *Tappahannock* in the last experiment. Sept. 6th, threshed; *Yield of wheat*, 2 bushels, or 8 bushels per acre (one less than *Tappahannock* variety); weight per bushel, 60 pounds; *straw*, 150 pounds, or 600 pounds per acre; *chaff*, 50 pounds, or 200 pounds per acre.

Value of crop.....\$4.75 or \$19.00 per acre.

Expenses of crop.....7.01 or 28.04 “

Loss.....\$2.26 or \$9.04 per acre.

EXPERIMENT (3) 1872-3.—*Fultz wheat*—seed grown on the Experimental Farm the year previous. One-half acre plot of comparatively level land, with a dark gray, compact soil, mixed with hard slate rocks; cultivated in oats the previous season. Sept. 24th, ploughed; Sept. 25th, harrowed twice; Sept. 30th, a seam made with the double shovel plough for reception of seed; and *Fultz wheat* at the rate of 1½ bushels per acre was sowed by hand, along with “superphosphate” (Flannagan’s) at rate of 400 pounds per acre, potash, 100 pounds, and sulphate of ammonia, at rate of 50 pounds per acre, all harrowed in at the time. The “Record” states, that the wheat came up and grew off well during the fall and winter. First of April, 1873, *Alsike* or *Swedish clover* was sown at rate of

four pounds per acre (not enough), the seed being mixed with one bushel of plaster and raked in with a horse-rake. The stand of clover was thin; not as good as red clover on the other two plots eight pounds per acre.

May 14th, wheat headed out, scarcely affected by Hessian fly; June 19th, cut with a scythe and eradle [two days after the Tappahannock, and eight days earlier than Touzelle]; Sept. 6th, threshed; *Yield* of wheat, 11 bushels, or 22 bushels per acre; weight, per measured bushel, 62 pounds; straw, 1700 pounds, or 3400 pounds per acre. Chaff, 175 pounds, or 350 pounds per acre.

Value of crop, including straw and chaff.....\$22.25 or \$44.50 per acre.
Expenses of crop..... 15.31 or 30.62 “

Profit.....\$ 6.94 or \$13.88 per acre.

EXPERIMENT (4) 1872-73.—*Fultz wheat*; seed grown on Experimental Farm; one-half acre plot, one-half of which the soil is similar to the latter; but more sloping; *washing*; and a *northwestern exposure*. The lower half rather better; a gray soil; sandy; mixed with fine flint rocks; was in Indian corn the previous season. Sept. 25th, ploughed; Sept. 26th, harrowed; Sept. 30th, seam made with double shovel plough for reception of seed; Oct. 1st, Fultz wheat sown at the rate of $1\frac{1}{2}$ bushels per acre by hand, along with “superphosphate” (Flannagan’s) at rate of 400 pounds per acre; potash, 100 pounds, and sulphate of ammonia at the rate of 50 pounds per acre; all harrowed in at the same time. The wheat came up and grew off well during the fall and winter. April 7th, 1873, “Alsike” or Swedish clover, seeded at rate of four pounds per acre. (not enough)—the seed being well mixed with plaster sowed at the rate of one bushel per acre, and raked in with a horse-rake. The stand was much worse than on the other plot—too washy. May 1st, more affected by Hessian fly than the last plot, but not as much so as the Tappahannock wheat; May 24th, wheat headed (ten days later than in Experiment 3); June 19th, cut with scythe and eradle; August 23d, hauled and stacked; Sept. 6th, threshed. *Yield* of wheat, seven bushels, or 14 bushels per acre; weight, per bushel, 62 pounds; straw, 714 pounds, or 1428 pounds per acre; chaff, 120 pounds, or 240 pounds per acre.

Value of crop.....\$15.00 or \$30.00 per acre.
Expenses of crop..... 14.81 or 29.62 “

Profit.....\$.19 or .38 per acre.

The weight of this wheat and that on plot No. 3, is alike remarkable.

EXPERIMENT (5) 1872-73.—*Eureka winter red wheat*, bearded (say like old Mediterranean)—seed a new variety from U. S. Department of Agriculture. One and one-fourth of an acre plot of land—sloping to the southwest—quite steep; soil reddish, with a mixture of fine flint and slate rocks, very poor, but tolerably friable. Experiment abandoned on account of silt washed down by the rains during winter, covering the wheat.

EXPERIMENT (6) 1872-73.—*Eureka winter red wheat*—same as former. Sowed on one-fourth of an acre plot of land with slight inclination to the southwest; soil sandy, red—mixed with flint rocks; poor but friable; in tobacco the previous year. Oct. 15th, wheat sowed the same day, at rate of $1\frac{1}{2}$ bushels per acre, with “superphosphate” (Flannagan’s) at rate of 400 pounds; potash, 100 pounds; and sulphate of ammonia at rate of 50 pounds per acre; all harrowed in at the same time. April 7th, lucerne was sowed broadcast, at rate of 12

pounds per acre, and raked in with a horse-rake, along with plaster, applied four bushels per acre. The stand was too poor to be continued (lucerne should be drilled with a plenty of plaster; kept clean of weeds the first season, and then cut and soiled.) This wheat grew off well during autumn, and winter, and was not affected by Hessian fly or rust. June 23d, cut with scythe and cradle (six days after the Tappahannock, four days earlier than the Touzelle, and four days later than the Fultz wheat.) Sept. 6th, threshed. Yield of wheat, five bushels, or twenty bushels per acre; weight, 62 pounds per bushel; straw, 1000 pounds, or 4000 pounds per acre; chaff, 117 pounds, or 468 pounds per acre.

Value of crop \$11.00 or \$44.00 per acre.

Expenses of crop 7.78 or 31.12 “

Profit..... \$ 3.22 or \$12.88 per acre.

Notice, also, the weight of this wheat, being the same as the Fultz; and two pounds more than Tappahannock and Touzelle varieties, the one badly injured by rust, the other by fly.

EXPERIMENTS 1873-74.

The experiments with wheat this year were made on four plots of land, with three varieties of wheat, with different commercial fertilizers.

EXPERIMENT (1), 1873-74.—*Fultz Wheat*. seed grown on experimental farm the previous year; $\frac{1}{2}$ -acre plot of land sloping to the southwest: soil dark gray in color, mixed with dark, slaty rocks. In corn the previous season; manured with “compost,” in the hill. Oct. 6th. Ploughed. Oct. 7th. Harrowed. Oct. 11th. A seam was made with the double-shovel plough for the reception of the seed. Oct. 13th. The seed was sown by hand at the rate of $1\frac{1}{2}$ bushels per acre. On one half of the plot was sown “*Superphosphate*” (English Flannagan’s) at the rate of 400 pounds per acre. On the other half was sown *Ammoniated Bone “Superphosphate”* (Zell & Sons, of Baltimore, at the rate of 400 pounds per acre. Hickory ashes, unleached, was also sown over the whole plot, at the rate of 10 bushels or 600 pounds per acre—the whole harrowed in at the same time with the seed. The wheat came up and grew off very well. March 21st. Red clover seed sowed at the rate of 8 pounds per acre (and proved to be a most excellent stand). This wheat was not affected by Hessian fly, but was attacked by chinch bugs, which appeared about the 1st of May, when my attention was attracted by certain yellow, well defined, small areas in this wheat, which, upon close examination, was found to be due to these insects in the red or wingless stage, among the fibrous roots of the wheat, to which they proved very destructive—making the plants sickly and unproductive. 11th of May. Wheat headed out. (On the 14th last year.) June 18th. Cut with scythe and cradle. (June 19th last year.) August 10. Threshed. Yield of wheat on section sowed with Flannagan’s *Superphosphate*, value \$2.75, 4 bushels, or 16 bushels per acre; weight per bushel, 60 $\frac{1}{2}$ lbs.; straw, 215 lbs., or 860 lbs. per acre; chaff; 80 lbs., or 320 lbs. per acre.

Yield on the section sowed with Zell & Sons’ “*Ammoniated Bone Superphosphate*,” value \$2.50, wheat, 4 $\frac{1}{2}$ bushels, or 18 bushels per acre; weight per bushel, 60 $\frac{1}{2}$ pounds; straw, 307 pounds, or 1228 pounds per acre; chaff 94 lbs., or 376 lbs. per acre.

Value of crop on whole plot.....\$14.57 or \$29.14 per acre.

Expenses 11.02 or 22.04 “

Profit \$ 3.55 or 7.10

The difference between the action of the fertilizers may be seen by the following tabular statement :

FERTILIZERS.	Yield of grain.	Weight per bushel.	Weight of straw per ac e.	Weight of chaff per acre.	Value of crops per acre.	Working expenses and Fertilizers.	Profit per acre.
Superphosphate (Flannagan's).....	16 bush.	60½ lbs.	86 lbs.	320 lbs.	\$17 08	\$22 52	\$4 56
Superphosphate (Zell & Sons).....	18 "	60½ lbs.	1228 lbs.	376 lbs.	\$31 08	\$21 52	\$9 56

Notice in this experiment the difference in the amount of straw and chaff with the two fertilizers used, and the exact weight of the grain.

EXPERIMENT (2), 1873-74—*Eureka Wheat*—Red-bearded; seed grown on the experimental farm; one-half acre plot of land sloping rather more steeply to the southwest than the last; soil dark gray, mixed with hard slate rocks. In corn the previous season, and manured in the hill with "compost." Oct. 7th. Ploughed and harrowed. Oct. 11th. A seam was made for the reception of the seed with a double-shovel plough. Oct. 13th. Seed sown by hand, at rate of 1½ bushels per acre. One half of the plot was at the same time sowed with *Patapsco Phosphate* (manufactured by G. A. Liebig, of Baltimore), at the rate of 400 pounds per acre. The other half was at the same time sowed with *Guanape Guano*, at the rate of 400 pounds per acre. Hickory ashes, unleached, was also applied to the whole plot, at the rate of 600 pounds per acre, and the whole harrowed in with the seed. March 21st. Sowed with red clover seed, at the rate of eight pounds per acre—a good stand without being rolled or harrowed in. This wheat was a good deal injured by the chinch bug. May 10th. Headed out, (one day ahead of the Fultz). June 18th. Cut with scythe and cradle—same day as the Fultz. Aug. 10th. Threshed. Yield of wheat in the section sowed with *Guanape Guano*—wheat 4¼ bushels, 61 lbs.; straw, 388 lbs, or 1552 lbs. per acre; chaff, 90 lbs. or 360 lbs. per acre. Yield of wheat on section sowed with *Patapsco Phosphate*. 3 bushels, or 12 bushels per acre; weight per bushel, 61 lbs.; straw, 195 lbs., or 780 lbs. per acre; chaff, 63 lbs., or 252 lbs. per acre; yield of whole plot, 7¼ bushels, or 15½ bushels per acre; straw, 593 pounds, or 1186 pounds per acre; chaff, 153 lbs., or 306 lbs. per acre. The difference between the action of the fertilizers, cost, &c., is seen in the following tabular statement :

FERTILIZERS.	Yield of grain per acre.	Weight per bushel.	Weight of straw per acre.	Weight of chaff per acre.	Value crops per acre.	Expenses and cost of Fertilizers per acre.
Patapsco Phosphate..	12 bus.	61 pounds.	780 pounds.	252 pounds.	\$20 36	\$22 36
Guanape Guano.....	19 bus.	61 pounds.	1552 pounds.	360 pounds.	\$33 08	\$27 36

Loss on Patapsco Phosphate.....\$2 00
Profit on Guanape Guano.....5 72

It is proper to state that the clover was decidedly better on the land fertilized with the *Patapsco* than on that with the *Guanape*, although it was very good on both sections.

EXPERIMENT (3), 1873-74—*Touzelles Wheat*—White, smooth head; seed grown on the experimental farm; sowed on half acre plot of land lying at the foot of a hill, with a slight slope to the southwest; cultivated in tobacco the previous season, and highly fertilized; the soil a red loam comparatively free from rocks. Oct. 8th. Ploughed and harrowed, and a seam made for the reception of seed, with a double-shovel plough. Oct. 13th. Seed sowed by hand at rate of two

bushels per acre. One-half of this plot was sowed with the fertilizers, viz: on eighth of an acre "Soluble Pacific Guano," (Allison & Addison, Richmond, Va.) at the rate of 400 pounds per acre; another eighth of an acre was sowed with "The Wheat Fertilizer," (Maryland Fertilizing Company of Baltimore) at the rate of 400 pounds per acre, (which I was informed subsequently was entirely too much; the manufacturers recommend the use of only 160 pounds per acre—and, from experiments the present season, I think they are correct). Hickory ashes, unleached, were also sowed, at the rate of 600 pounds, over the whole plot. The whole was then harrowed in with the seed. March 21st. Red clover seed was sown, at the rate of eight pounds per acre. This wheat was almost exempt from chinch bug, and entirely so from Hessian fly, but suffered severely from rust, notwithstanding the dry season. June 23d. Cut with scythe and cradle (four days earlier than the same wheat the year previous). August 11th. Threshed. Yield on section sowed with "Soluble Pacific Guano"—Wheat, $2\frac{1}{2}$ bushel, or 17 bushels per acre; weight per bushel, 56 pounds; straw, 190 pounds, or 1520 pounds per acre; chaff, 56 pounds, or 448 pounds per acre. Yield on the section sowed with "The Wheat Fertilizer"—Wheat, $2\frac{1}{16}$ bushels, or $16\frac{1}{2}$ bushels per acre; weight per bushel, 56 pounds; straw, 180 pounds, or 1440 pounds per acre; chaff, 42 pounds, or 336 pounds per acre.

The difference in the action of the fertilizers, expenses, cost, &c., is seen in the following tabular statement:

FERTILIZERS.	Yield of grain per acre.	Weight per bush.	Weight of straw per acre.	Weight of chaff per acre.	Value of crop per acre.	Expenses and cost fertilizers per acre.	Profit.
"Soluble Pacific Guano"....	17 bush.	56 pounds.	1520 lbs.	448 lbs.	\$30 88	\$22 88	\$8 00
"Wheat Fertilizer," Md. Fer. Co	$16\frac{1}{2}$ bush.	56 pounds.	1140 lbs.	336 lbs.	\$29 20	\$22 88	\$6 32

Notice the deterioration in weight of this variety of wheat, which, in the experiments heretofore, has weighed 60 pounds per bushel—too late and too liable to rust and mildew. The stand of clover was equally good on the land; and the yield of hay the present season was at the rate of two tons per acre, besides a splendid second crop now being ploughed in for wheat this September.

EXPERIMENT (4), 1873-74—*Fultz Wheat*—Seed grown on the experimental farm the previous year; one-fourth of an acre plot of land sloping gently to the south; soil red—quite free from rocks; was in tobacco the previous season—well fertilized, but not manured. Oct. 8th. Ploughed and harrowed. Oct. 14th. A seam was made with double shovel plough for the reception of seed, which was sown by hand at the rate of $1\frac{1}{2}$ bushel per acre. One-half of the plot was sown with "Patapsco Phosphate," at the rate of 400 pounds per acre—the other half with "Guanape Guano," at rate of 400 pounds per acre, and hickory ashes, unleached, at the rate of 600 pounds per acre, was then sowed over the whole, and all harrowed in together with the seed. The wheat came up, and grew very well during the winter and spring; was not injured by chinch bugs or fly. March 21st. Red clover seed, at rate of eight pounds per acre, sown. June 22d. Cut with scythe and cradle (three days later than the same wheat the previous year); entirely free from rust. August 12th. Threshed. While this wheat was being harvested, being called off for a few miles, a heedless cradler cut over the line between the two plots with different fertilizers, embracing in his snathe the wheat of both, which rendered the experiment useless as between the Patapsco and

Guanape fertilizers. During the growth of the wheat, there was no perceptible difference in the crop. I have no doubt, however, but that there would have been a perceptible difference, if the experiment had been preserved intact, and put to the test of weight. The yield of the plot was—Wheat 6 bushels, or 24 bushels per acre; weight, 60½ pounds per bushel; straw, 605 pounds, or 2420 pounds per acre; chaff, 154 pounds, or 616 pounds per acre.

Value of crop.....	\$10.97 or \$43.88 per acre.
Expenses.....	7.02 or 28.98 “

Profit.....	\$ 3.95 or \$15.80 “
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The stand of red clover was very good; was cut on June 10th—hauled and weighed June 14th, 1875, producing over two tons per acre. The second crop—equally as good as the one cut for hay—is now being ploughed in for wheat in September. Notice that this wheat had no rust, was cut three days earlier than the Touzelle, and weighed 60½ pounds per measured bushel, while Touzelle only weighed 56 pounds per bushel, and suffered terribly from rust.

The following experiments were made on seven plots of land, with five varieties of wheat, and with different commercial fertilizers, during 1874-75:

EXPERIMENT (1)—*Fultz Wheat*—Seed grown on the experimental farm; sowed on half-acre plot (the same described in experiment 3 for 1873, page of this communication). This plot has been submitted to the following rotation and fertilizers—Sept. 24th, 1872, fallowed after being in oats. Oct. 1st, 1872. Sowed with Fultz wheat, with Superphosphate (Flannagan's) at rate of 400 pounds per acre, potash 100 pounds, and sulphate of ammonia 50 pounds per acre. April 7th, 1873, sowed with “Alsike clover,” which was too short to mow; was not grazed during summer of 1873. Ploughed in August 21st, 1874. August 22d. Harrowed. Oct. 3d, 1874. Ploughed with double-shovel. Oct. 6th. Was sown with “Ammoniated Bone Superphosphate,” (Zell & Sons, Baltimore, Md.) at the rate of 400 pounds to the acre, and harrowed in immediately afterwards. Oct. 12th, 1874. Fultz wheat was put in with Bickford & Huffman's “old drill,” at the rate of five pecks per acre. This wheat was badly drilled, and was too thin; was not affected by insects or rust—seemed to be badly injured by the severe frost of the 18th of April, but soon recovered. June 21st. Cut with scythe and cradle (three days later than the same wheat on the same plot June, 1873). July 9th. Hauled. July 24th. Threshed—with an indifferent machine, which left five per cent. of the grain in the straw. Yield of wheat, 10¾ bushels, or 21½ bushels per acre; straw, 675 pounds, or 1350 pounds per acre; chaff, 175 pounds, or 350 pounds per acre.

Value of crop.....	\$21.23 or \$42.46 per acre.
Expense.....	11.29 or 22.58 “

Profit.....	\$ 9.94 or 20.88 per acre.
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This was an indifferent “Alsike clover” fallow, and the wheat was put in with an indifferent drill, and was too thin.

EXPERIMENT 2, 1874-75—*Fultz Wheat*—Seed grown on experimental farm—half-acre plot of land (the same that was sowed with Fultz wheat after corn Oct. 1st, 1872. See Experiment 4, Report 1873). This was also an indifferent “Alsike clover” fallow, not mowed or grazed. August 22d. Ploughed in and harrowed. Oct. 3d. Ploughed with a double-shovel. Oct. 6. Superphosphate Wheat Fertilizer, obtained from the Maryland Fertilizing Company, Baltimore,

Md., sown at rate of 160 pounds per acre, and harrowed in immediately after. Oct. 1 th. Wheat sown with the drill at the rate of five pecks per acre. This wheat was free from insects and rust, but was badly injured by the severe frost on the 18th of April. June 21st. Cut with scythe and cradle. July 9th. Hauled. July 24th. Threshed with same machine as the last. Yield of wheat, 11 bushels, or 22 bushels per acre; straw, 700 pounds, or 1400 pounds per acre; chaff, 200 pounds, or 400 pounds per acre.

Value of crop..... \$20.59 or \$41.18 per acre.
Expenses 7.94 or 15.88 “

Profit..... \$12.65 or \$25.30 per acre.

EXPERIMENT (3) 1874-75.—*Fultz Wheat*, seed grown on experimental farm—sowed on one-fourth of an acre plot, [the same that was sown in Tappahannock wheat after corn, October 1st, 1872. See experiment (1), report for 1873.] This was a red clover fallow; the first crop was mowed May 29th, 1874; the second crop was ploughed in, August 23d, was not grazed. October 2d, harrowed; Oct. 3d, plowed with double shovel; Oct. 6th, *The “Stonewall” Fertilizer* from B. C. Flannagan & Son, Charlottesville, [manufactured by Lorentz & Rittler, Chemical and “Superphosphate” Factory, Baltimore, Md.] was sowed at the rate of 400 pounds to the acre, and harrowed immediately. Oct. 12th, the wheat was “drilled” at the rate of one and a quarter bushels per acre—badly done, causing the wheat to be too thin. Not affected by insects or rust: but injured by the frost of 18th of April. June 22d, cut; July 10th, hauled; July 24th, threshed, with same machine as last. Yield of wheat six and a quarter bushels, or twenty-five bushels per acre; straw 375 pounds, or 1500 pounds per acre; chaff 120 pounds, or 480 pounds per acre; weight of wheat, 60 pounds per bushel.

Value of crop..... \$11.64 or \$46.56 per acre.
Expenses of crop..... 5.93 or 23 72 “

Profit..... \$5.71 or \$22.84 “

This plot was in Tappahannock wheat, [in 1873, fertilized with “superphosphate” at rate of 400 pounds; nitrate of soda, 100 pounds; and sulphate of ammonia, 50 pounds per acre.] See experiment (1), report for 1873; when it produced at rate of nine bushels per acre.

EXPERIMENT (4) 1874-75.—*Fultz Wheat*, seed grown on experimental farm—sowed on one-fourth of an acre plot, same cultivated in Touzelle wheat. See experiment (2), report for 1873. Was in red clover; the first crop mowed May 29th, and the second crop plowed in August 24th; October 2d, harrowed; and plowed with the double shovel. September 3d, the simple “superphosphate” i. e. the Charleston coprolites ground; and heated with sulphuric acid, obtained from the Maryland Fertilizing Company, Baltimore, was sowed at the rate of 400 pounds per acre; ashes unleached at the rate of 240 pounds per acre; and plaster at the rate of 50 pounds per acre; all harrowed in immediately. October 12th, wheat put in with the drill. It was not affected by insects, or rust; but injured to the same extent as the other plots, by frost of 18th of April. June 22d, cut with cradle; July 10th, hauled off; July 24th, threshed, with same machine as the other plots. Yield of Wheat, five bushels or 20 bushels per acre, weight per bushel, 60 pounds; straw 370 pounds or 1480 pounds per acre; chaff 118 pounds or 472 pounds per acre.

Value of crop.....	\$8.68 or \$38.72 per acre.
Expenses of crop.....	7.30 or 29.20 “

Profit.....\$2.38 or \$ 9.52 per acre.

This plot produced eight bushels per acre of Touzelle wheat, when last cultivated. See experiment (2), report 1873.

EXPERIMENT (5) 1874-75.—*Tappahannock Wheat*, seed from U. S. Department of Agriculture; sowed on eighth of an acre plot, nearly level; partly tile drained; soil dark and more sandy; was in perennial rye grass, following oats the previous year. The rye grass proved a failure. October 3d, plowed, was scarcely more than a weed fallow; October 5th, harrowed; October 19th, plowed with a double shovel; and sown the same day with “superphosphate” (from the Maryland Fertilizing Company, Baltimore) at the rate of 400 pounds per acre; and 1½ bushels of wheat per acre. About the first of May, some Hessian fly was found on the borders of the plot, and on the 21st of May, chinch bugs were also discovered; but neither of these pests extended their voyages very far. June 23d, cut with scythe and cradle; July 10th, hauled; July 24th, threshed; yield of wheat 2½ bushels or 22 bushels per acre; weight per bushel 60 pounds; straw 183 pounds or 1080 pounds per acre; chaff 65 pounds or 520 pounds per acre.

Value of crop.....	\$4.72 or \$37.76 per acre.
Expenses of crop.....	2.29 or 18.32 “

Profit.....\$2.43 or \$19.44 per acre.

Notice that the Tappahannock is the only variety of wheat affected by Hessian fly and chinch bugs. See also experiment (1), report for 1873, when it was more injured by fly than other varieties.

EXPERIMENT (6) 1874-75.—*Jennings' White Wheat*, ‘bearded’ seed from U. S. Department of Agriculture; sowed on an eighth of an acre plot of land; soil dark and rather sandy; at foot of a hill with southwest exposure; was in peas and Irish potatoes the season previous. October 3d, plowed; October 5th, harrowed; October 19th, plowed with a double shovel plow, and sowed the same day with “Simple Charleston Phosphate,” ground fine; [but not treated with sulphuric acid] obtained from the Maryland Fertilizing Company, Baltimore, at rate of 400 pounds per acre; wheat sown at the same time at rate of 1½ bushels per acre. This wheat was not affected by insects, or rust, or smut, &c. June 23d, cut with scythe and cradle; July 24th, threshed with same machine as other varieties (losing at least five per cent). Yield of wheat two bushels or sixteen bushels per acre; straw 105 pounds or 840 pounds per acre; chaff 50 pounds or 400 pounds per acre.

Value of crop.....	\$3.76 or \$30.08 per acre.
Expenses of crop.....	1.23 or 9.84 “

Profit.....\$2.53 or \$20.24 per acre.

Notice that the phosphate used in this crop, is the Simple Ground Charleston Phosphate, not treated with sulphuric acid, cash \$25 per ton.

EXPERIMENT (7) 1874-75.—*Claoson White Wheat*, seed from U. S. Department of Agriculture; sowed on eighth of acre plot, quite level; at the hill, with a southern exposure; in tobacco the season previous, and well fertilized; soil a dark sandy loam, without rocks. October 15th, plowed; October 19th, plowed

with the double shovel, and sown the same day with "Orchilla guano," at the rate of 400 pounds per acre; wheat also sowed [by hand] at the rate of $1\frac{1}{2}$ bushels per acre. This wheat grew off vigorously; stood the winter very well; was not affected by insects; somewhat by blade rust; and tumbled where the growth was rankest. July 1st, cut with scythe and cradle (eight days later than Jennings' white bearded; eight days later than Tappahannock; nine days later than Fultz, and three days later than Eureka wheat cultivated in the vicinity). July 10th, hauled; July 24th, threshed; yield of wheat 4 bushels or 32 bushels per acre; weight per bushel 60 pounds; straw 285 pounds or 2280 pounds per acre; chaff 120 pounds or 960 pounds per acre.

Value of crop.....\$7.92 or \$63.36 per acre.

Expenses of crop..... 2.26 or 18.08 "

Profit.....\$5.66 or \$45.28 per acre.

Orchilla guano cost \$30 per ton; and I have no doubt is an excellent fertilizer; but the previous condition and treatment of this plot having been very generous, we are not surprised at the result, which shows that our experiment proves very little. The difference in the action of the fertilizers is seen in the following statement:

Variety of Wheat.	Fertilizers applied per acre.	Yield per acre	Weight per bushel.	Weight straw per acre	Weight chaff per acre	Profit per acre.
Fultz Wheat (1).....	400 lbs. Zells Superphosphate..	21 $\frac{1}{2}$	60	1350	350	\$20 98
Fultz Wheat (2).....	160 lbs Superphosphate or Wheat Fertilizer, from Md. Fertilizing Co. "	22	60	1400	400	25 30
Fultz Wheat (3).....	400 lbs. " "	20	60	1480	472	52
Fultz Wheat (4).....	400 lbs. Stonewall Fertilizer.	25	60	1500	480	22 84
Tappahannock Wheat (5).....	400 lbs. Superphosphate, also Ashes, 240 lbs. and Plaster 50 lbs., from Md. Fer. Co	20	60	1080	520	19 44
Jennings' Wheat (6).....	400 lbs. Simple Phosphate from Md. Fertilizing Co.	16	60	840	400	20 24
Clawson Wheat (7).....	400 lbs. Orchilla Guano.	32	60	2280	960	45 28

A tabular statement of this kind shows the importance of considering all the conditions in the experiment, as well as the previous condition and treatment of the land, and how necessary it is to repeat the same experiments in order to arrive at correct conclusions. There are a few subjects in connection with the cultivation of wheat that I regard as very important, which have not been mentioned. One of importance is the preparation of the seed wheat, before it is sowed, in order to cleanse it thoroughly from all filth, imperfect grains, and fungi spores, as smut, &c. To accomplish this, my invariable rule is to wash all seed wheat the day before it is sowed in salt and water, or brine, made strong enough to bear an egg. The wheat is poured into a barrel about half full of brine, and is stirred and rubbed with the hands, and as the filth, imperfect grains, &c., rise to the surface, they are carefully skimmed off. The wheat is then taken out (after pouring the brine off into another barrel), and spread until it is dry enough to sow, which is usually the case the next day. Another matter which I regard of some importance in seeding the wheat, when it is to be sowed broadcast, is to make a seam for the reception of the wheat, with the double shovel plow. When the wheat is seeded in this way, it falls into the seams, and is covered by the harrow so well, that when it comes up, it looks almost exactly as if it had been drilled, and in my observation succeeds as well as "drilling," and far better than harrowing in the wheat. It is especially applicable to the thorough seeding of hill-

sides and slopes, with western exposures. Another subject of importance to be considered in the cultivation of wheat, is the influence of exposure on these hill-sides and slopes; whether to the north, south, east or west. The southern and eastern exposures, have long since been regarded as those most favorable, while the northern and western are unfavorable. The eastern and southern slopes are the first to catch the rays of the morning sun, and are the least exposed to the influence of the cold winds from the north and west, which prevail in the winter and spring. It is on this account that "land sloping to the east will have good wheat growing on it, while other parts of the same field, that slope to the westward, will be ruined."

To what extent exposure has influenced the results of the foregoing experiments, I am not prepared to say, but I am sure that he who will read the record of these experiments, will be satisfied, that with a certain amount of capital judiciously applied to the cultivation of the soil, he need not fear the result of fair remuneration for time, labor, and expense, after going through with one liberal rotation of crops. There could scarcely have been found a worse subject to work on, than that upon which these experiments have been made, with commercial fertilizers mainly; but all the cereal crops are now remunerative—the root crops largely over the average made in the country, and the land in a condition to bring good crops of clover; and to become well set in the grasses. It is highly important that our farmers should ever bear in mind the importance of having a certain amount of capital, and that, with the judicious application of a small amount, a good deal may be done in the improvement of poor land. "Without a reasonable sum of ready money, every operation on the farm must be done at a disadvantage," and this is the reason why our leasing and tenant system has worked so badly. The English tenant farmer requires £5 or \$25 per acre to farm leased or rented land; and no judicious landlord will rent to a man, who expects to cultivate land successfully on less capital. How this capital is to be acquired is another matter, which demands the earnest attention of our best informed domestic economists. Trusting that the length of this communication will not weary your readers, I have the honor to be very respectfully yours, &c.,

JOHN R. PAGE M. D.,

Professor of Natural History, Experiments and Practical Agriculture.

NOTE BY THE EDITOR.—We esteem it a great privilege to present to our readers this record of the "Experimental Farm," in Albemarle. These experiments have a greater value than the modesty of the Professor permits him to award them. Aside from their direct bearing, though not conclusive, they are an *example*, and as such must prove a powerful teacher. Time is the essential element in all such operations; and continued experiment, modified by the vicissitudes of season, only can evolve principles of general application. Such "experimental stations" are much too few anywhere in this country, and their absence is sorely felt by every honest student of the soil. Prof. JOHNSON, of Yale, (and we all owe him a debt of gratitude) has often expressed this regret, and writing, as he does, mainly for the benefit of his own country, he has been compelled, from the paucity of material at home, to depend almost wholly upon the experiments and investigations of other countries, for the lessons taught by the field and garden. Isolated experiments practically prove nothing, and the conductor of an agricultural journal in America, desirous, as he sincerely must be, of subserving in *fact* the great interest whose importance he is called upon to advance, is only too sen-

sible of how far short the material he is able to present comes of performing the valuable general service it should.

Except the experimental stations at Blacksburg (the "Agricultural and Mechanical College"), and that in Albemarle, Virginia is without aid in this direction. With lands as diversified as hers, both in respect of character and altitude, these stations should be as numerous as they are in Germany. But this takes money, and presumes also a reasonably settled agricultural economy in the matter of the general conduct of that calling. And yet we are not without a resort that, properly managed, must bear good fruit. We refer to the Grange. It has brought our people together as nothing else could, and we are persuaded that the combined action it is able to command will effect what, under ordinary circumstances, might never have been brought about. *Each subordinate Grange should constitute itself an experimental station.* At least one of its members will have ability and leisure enough to arrange a basis of experiment, which each will try on his own place. The very fact of his willingness to undertake such experiments evinces a disposition to observe more closely, perhaps, than he ever did before; and the natural desire to present his record as intelligently as possible, will beget a wish to acquaint himself with, at least, the elementary principles, in a scientific way, underlying such operations. The English motto is "PRACTICE WITH SCIENCE," and this carried out has brought the average product of wheat per acre, throughout that Kingdom, from 14 to 28½ bushels! These records, analysed by the Secretary of each Grange, would present points for improved management to all the members, and when the State organization shall be so compacted as to admit of a permanent central source of administration, these memoirs of careful and faithful observation, would furnish material so copious and so universal, as to admit of a summary instructive, in the highest degree, to every portion of the Commonwealth.

[For the Southern Planter and Farmer.]

RECLAIMING OUR BOTTOM LANDS.

Agreeably to your request I will offer a few additional remarks on the above subject as contained in my communications to the *Southern Planter* in 1870. In my first communication, I advanced the policy of cutting our ditches on a sinuous course, but exemplified my position in a subsequent communication, by stating that we should locate them on the lowest portions of land, taking nature's system of hydraulics for our guide.

I have never yet seen a branch or creek fill up in their natural state if they were kept free from hammocks and rafts, and all our branches still have deep channels; and wherefore? Because of the force of the current during a freshet that floats the sand and debris on the adjacent lands, and thereby leaving the channels stationary. This law holds equally good with regard to our creeks and rivers, which from time immemorial has received the washings from the hills and their tributary streams, and yet their channels do not fill up. Facts are stubborn things and not to be overturned by theories.

I remember well when the reclaiming our bottom lands by ditching commenced. The theory advanced was, that a straight ditch would carry a third more water than a crooked stream, and conse-

quently our bottom lands would be less subject to overflow. But time, the test of all things, has proven this theory to be fallacious, as the present state of much of our bottom lands will testify.

Dr. Gillispie in the *Southern Planter* for 1870, gives the true mode of locating our ditches. "Ride on your bottom lands during an overflow and stick stakes in the current of water, which will be an index where to locate your ditch; or, if this is impracticable, examine the land, and view the abrasion and track of the current made during freshets as a guide." It was by this method that Dr. Gillispie cut a ditch which permanently reclaimed valuable bottom land that hitherto had been worthless, and his ditch, three by two feet, washed out wide and deep.

In my communications to the *Southern Planter* in 1870, to fortify the position I had taken on this subject. I mentioned the result on a farm I once owned, the bottom land of which was ruined by straightening the creek; and another farm of once productive low grounds that had been rendered worthless for cultivation by the straightening system. I also mentioned the farm of the late Wm. Russell, containing 400 acres of productive bottom land, through which a large creek runs, that is still in its natural state, and the deceased owner, during a long life, uniformly (in the absence of unusual freshets) made fine crops thereon—that a mill-dam of some 20 years standing at the lower end of the farm, had been cut down, and that portions of the creek had been washed out to the depth of six feet, and this process was going on through the whole length of the farm. I visited this farm again two years after the above was written, and found that the channel of this creek was two feet deeper than on my former visit; and I doubt not, but that in process of time, the channel of this creek will become as deep as in days of yore. I also introduced a relative of mine whose 200 acres of once prolific low grounds had been ruined by straightening the creek, which has a fall of nine feet to the mile.

The above facts which might be substantiated by many others, prove conclusively that our mode of ditching heretofore has been contrary to the principles of hydraulics, and to be successful, we must ditch upon the fore ground principle, locating our ditches on the lowest portion of land, because water will seek its lowest level. Or put the creeks back again in their former channels, in imitation of the Board of Engineers, who diverted from its course by a great freshet, should again be conducted to its former outlet into False Bay, through its ancient channels, instead of a canal on a straight line.

I do not wish to be understood as being opposed to straight ditches *in toto*; on the contrary, when we can cut them so that they will wash wide and deep, our object is attained, but when erroneously located, they fill up, defeat our object, and ruin the land.

Yours respectfully,

WM. P. HATCHETT.

[For the Southern Planter and Farmer.]

PROFESSOR VILLE AND CHEMICAL MANURES.

For two or three years past we have heard little of "Ville" and his new departure in agriculture—it seemed that the doctrines of which he was the expositor, had not stood the test of experience, and had gone the way of so many other vaunted discoveries, now known only to antiquarians. But latterly there appears a disposition to revive his theory. He is quoted in a recent number of the *Planter*, two or three times by "Levi Bartlett," in the *Country Gentleman*, and by a dealer in fertilizers in New York, who informs the public that he has made arrangements to supply farmers, &c., with M. Geo. Ville's lectures on chemical manures, translated by Miss Howard—and that "no agriculturist should fail to obtain a copy."

M. Ville is the special advocate of "commercial," "chemical," or "concentrated" fertilizers as distinguished from bulky stable or farm-yard manures, and his teaching is in brief: that by the aid of chemical manures scientifically compounded to suit the requirements of different plants we can profitably grow maximum crops on almost any kind of soil—that we can go on from year to year in this way, maintaining and increasing the fertility of the soil without necessarily recurring to green crops or any other mode of restoring to it vegetable matter.

Let me quote a few passages from M. Ville, to show that I do not misrepresent him.

In his lectures at Vincennes (1867), after a rapid glance at some of the elementary principles of vegetable physiology, bearing on his subject, he says, in substance :

That of the ten minerals which enter into the composition of plants, there are only *three* with which the agriculturist need occupy himself, because all soils (worth cultivating) contain the others in abundance—and that these three, lime, potash, and phosphorus, with the addition of some azotic matter, are sufficient to maintain and increase the fertility of the soil. And further on :

"Until within the last twenty years it has been asserted that the farm-yard was our agent, *par excellence*, of fertility. We maintain that to be erroneous, and that it is possible to produce better and cheaper manures than can the farm-yard." And again :

"It has been said that the meadow is the foundation of all good agriculture, because with the meadow we have cattle, and with the cattle manure. These axioms are now veritable heresies."

I might multiply these quotations, but it is needless. The scope and tendency of his doctrine is to show that bulky manures and fallow crops, meadows and intervals of rest (the "*longa desidia*" of Cato) are not necessary to maintain the productiveness of land, and may be dispensed with under the new evangel. It is true he allows that *humus* possesses valuable properties in agriculture—but proceeds to

show that this is through "dissolvent action," and that it can be substituted by sulphate or nitrate of lime.

No one who will patiently follow M. Ville's reasoning and the detail of his experiment at Vincennes can fail to be impressed with his candor, earnestness and scientific research. It is difficult to withhold conviction—one is involuntarily carried along, dazzled by the magnificent prospect held out to the farmer—the potential wealth assured to him if he will only use chemical manures as prescribed. Such circumstantial and precise reports of the results of M. Ville's own operations are given; and in addition, many certificates from farmers in various districts of France who have followed M. Ville's prescriptions, and have reaped crops so large as to make an American open his eyes! Thus a field in Champaign, which, with a heavy application (30 tons and more) of farm-yard manure per acre, had only yielded 19 bushels, with the "complete fertilizers" (the formula especially recommended for wheat) gave forty-seven (47) bushels of wheat per acre! And other instances as remarkable or more so—there seem to have been no cases of disappointment.

Withal, these essays are pleasant reading and not unprofitable, if one is provided with a good conservative stock of incredulity, and will receive M. Ville's assurance, not with "a grain of allowance," but with *four*. That is, make your calculations on this basis, if you are going to make a venture with fertilizers after M. Ville's formula, that the cost will be in round numbers *double*, and the result half of what we are told to expect.

This assertion is not made loosely. A gentleman of this county, an accomplished and enterprising planter, has tested the theory fairly, and on a larger scale than most farmers can afford. The preparations were compounded in Baltimore and in Richmond, by the most reliable houses, after M. Ville's formula and used according to direction on various crops and under different conditions, with a result in each case lamentably disproportionate to the outlay. Had the issue been favorable, it was the design of the gentleman I refer to, to purchase the fertilizers in France. He opened a correspondence with M. Ville, who responded most courteously and with evident gratification; gave him the address of a firm in Nantes who could be relied on to furnish a good article, and presented copies of several of his essays which have not been translated into English, as far as I know.

M. Ville has written much and well on politico-economic subjects connected with agriculture—in general bearing on his pet theory. A pamphlet on the "Agricultural crisis in the light of science" (that rendering does not suit me, but it is the best I can give), is well worth reading, were it only for the noble and eloquent argument for free trade it contains. There is a treatise on the "beet and legislation on the subject of sugar"—another on the "potato rot"—"researches on absorption of nitrogen by plants." Courses of lectures at Vincennes in '64 and '67, and at Lyons—and several other essays

and reports. The lectures translated by Miss Howard contain the pith and marrow of his doctrine. This translation, while sometimes obscure, is good, surprisingly so, when it is considered that it was the work of a lady—that she probably had no previous knowledge of the subject matter—even of its terminology. Besides this translation, there is an abstract in catechetical form, “The school of chemical manures, &c., from the French of M. Georges Ville, by A. A. Fesquet,” Philadelphia.

I have too much extended this article, and have not yet accomplished my object, which is to enter a caveat against this doctrine, because its logical result will be ruinous to our lands. If we can get “better and cheaper manures from the laboratory than from the farm-yard,” the farm-yard will be neglected. If we can impose upon our lands and force them to produce a crop every year, clover and other grasses will be crowded out. A continuance of this scourging system for a few years would ruin all the rolling lands through abrasion. Every practical farmer of the hill country knows that land well stored with vegetable matter washes comparatively little—on the other hand, when it is worked down rain has an easy prey. The galls and gullies which drain the faces of Virginia and other Southern States, tell the story of how our ancestors farmed without manure and without the grasses. “Complete fertilizers” would not have averted this—would only have hastened the catastrophe.

And the result would be disastrous (in a less degree to be sure) in champaign countries where washing rains are not feared. Close cultivation without ameliorating crops or manure (I mean farm-yard manure) will exhaust land of its vegetable matter so that it becomes difficult to work, close and grassy in its texture, apt to bake in summer, and be too wet in winter. This is not imaginary—I have seen rich bottom land brought to the condition I have described while the *mineral elements* of fertility were still abundant, as shown by the fact that it would produce clover luxuriantly, and be rapidly restored by it. And in the absence of clover, a year’s rest and a crop of weeds will produce a striking effect.

The conclusion I would establish is that commercial fertilizers ought to supplement and not substitute the manures of the farm-yard and stable, and ameliorating crops. The enormous prices paid for stable manure by the tobacco-growers of Connecticut, and the gardeners of Long Island and New Jersey, show that these practical men have settled the question so far as they are concerned, and in this section, where guano and superphosphates are largely used, and have been for more than twenty years, it is well known that concentrated fertilizers act far more efficiently when used in conjunction with a dressing, however light, of home-made manure, or even of bright straw or chaff. I have seen a moderate dressing of chaff, plus 400 pounds Peruvian guano, show (in a crop of tobacco) such superiority over 400 pounds *alone* as could not at all be accounted for, in my judg-

ment, by the amount of *mineral plant-food contained in the chaff*

I almost accuse myself of uttering platitudes when I state facts so well known to practical Virginia farmers. On the other hand, I am aware that they are susceptible of a different interpretation from the one I have given—that is, it might be so claimed through “oppositions of science falsely so-called.” But this I know: that agriculture cannot be treated by theorists as an exact science, or if it is attempted, disturbing elements will unexpectedly knock all their nice calculations and fine-spun doctrines into “pi.” I presume to charge that M. Ville has little or no idea how greatly the mechanical condition of soils influence their productiveness—this seems to me to vitiate all his arguments. He reasons throughout as though all that is necessary to make and keep the soil productive is to supply it with plant-food—going so far as to assert that it is of no consequence whether land was naturally barren or had become so by exhaustive cultivation. Had he been a “working farmer” instead of a laboratory one, he would have known better than this, and avoided other errors which I would undertake to point out, but that I have already been too prolix.

If, Mr. Editor, you wish for further information on this subject, I suggest that you apply to the gentleman I have referred to, and whose address I take the liberty of giving you, for an account of his experience with “chemical fertilizers.”

RANDOLPH HARRISON.

NOTE BY THE EDITOR.—As far as we have been able to learn, the use of M. Ville's chemical manures has not been attended in Virginia with any very great success; certainly not at all corresponding to the results reported in his books as having been obtained in France. We doubt, indeed, whether either his manures; or those made by Mr. Lawes, so popular in England (resort being had, in both cases, to active salts), will ever be found serviceable in a climate like ours, where we suffer so much more from drought than we do from rains. Our needs appear to lie rather in the direction of gentler and better sustained action; at any rate, we observe that good results are more uniformly gotten from manures prepared with this end in view.

To say nothing of the reports of our own people in support of the practice, the experiments made, from year to year, by Dr. Goessmann, at the *Massachusetts Agricultural College*, demonstrate fully how much the use of domestic and chemical manures, *in conjunction*, is to be preferred over the use of either alone.

There is a wonderful difference between land that is “born poor,” and that which is merely exhausted of available material; and we are thankful to say that few Virginia lands are “born poor.” If they had been, our case now would be forlorn indeed, whereas under the most strained evidence of regard, say a dressing of 200 pounds to the acre, they make a grateful return, and that, too, under the pressure oftentimes of seasons far from propitious. We wish our farmers could afford to spend *less* for labor, and *more* towards the enhancement in value of their fixed capital—the land. As examples are the best teachers we will cite one in this connection: The average product of cotton, per acre, in our cotton country, is nearly half a bale. Col. Lockett,

of Georgia, took seven acres of land, no better than the generality of ours, and prepared it for cotton. It was thoroughly plowed and subsoiled, and in addition to a liberal dressing of domestic manure, he applied 400 pounds to the acre of the best commercial fertilizer he could command. He picked from these seven acres, not $3\frac{1}{2}$ bales, but 17. He thus saved the labor bill on 27 acres, and spent not as much for manure as his neighbor spent for his, spread over 34 acres; besides, the Colonel's land has improved largely in value, while that of his neighbor has depreciated.

It is a mere truism to say that lands rich in vegetable matter are highly productive. In the essential matter of bread, ample provision is made for us in the *clover plant*. Nitrogen is the element most desired by cereals, and clover stores it up with an unstinting hand. As manna was sent down from heaven to God's people of old, "without money and without price," so does the same beneficent friend provide for us now in the gift of this most precious plant. Soils possessing the good clay foundations so general in Virginia, broken to a depth that will allow of the free entrance of the air and easy penetration of roots, supply, with inexpensive aid otherwise, all the mineral material needed by the clover, the atmosphere and the rains doing the rest.

We heartily commend to our readers this instructive paper of Col. Harrison, and do hope that the representative men of the State (among whom he stands justly honored) will not abate their interest in the questions which so vitally affect our well-being as a people. We can never expect any better things than we have had in the South since the war so long as we continue, in so many ways, the willing slaves of the North and West. Eschewing general politics, and fostering a disposition to make ourselves *absolutely self-sustaining*, will bring to terms those people who have seen that we could, through our dependence on them, be imposed upon with impunity. The cotton country has already advanced so far in this direction that we understand Georgia this year will be a *seller* of food supplies.

[For the Southern Planter and Farmer.]

AMELIA PLANTATION OBSERVATIONS.

Last year I gave in the *Planter and Farmer* an account of experiments I made on corn land with several fertilizers. For instance, seven half-acre plots in the same field, all treated precisely alike, so as to secure uniformity of treatment and advantage. No. 1 had nothing but gas house lime. No. 2 had gas house lime and 100 pounds of Chas. McGruder's Bone Flour. No. 3 had 100 pounds of salts of potash, in addition to lime as the others. No. 4 had 100 pounds of Old Dominion Fertilizer, and the same proportion of lime. No. 5 had 100 pounds of Powhatan Raw Bone Phosphate, from J. G. Downward, as also the lime dressing. No. 6 had 25 pounds each of the fertilizers named above, and the lime. No. 7 had no manure at all. No. 6 showed the best results last year, so far as the commercial fertilizers were concerned. But the effects of the lime was the most remarkable feature in the last year's crop. I found it necessary for the purpose of cleaning the field perfectly to put it into corn again. And I wish to record the results thus far, for the study of my brother farmers.

This year No. 1 has shown from the first working that it lacked the elements of fertility, and but for the fine season we had for some four weeks, would scarcely have made more than nubbins, while No. 2 has grown vigorously and fruited fully, and the corn is already made. No. 3 has shown all along in its growth that it was no better than No. 1. No. 4 showed a decided improvement over No. 3, but is far from equal to No. 2 or No. 5. No. 5 is nearly equal to No. 2, whilst No. 6 is about on a par with No. 4. These observations, with others, satisfy me that Raw Bone Flour is the most effective commercial fertilizer on our soils.

My wheat crop showed the same results. Where the Old Dominion Fertilizer was applied at the rate of 200 pounds per acre on the preceding oat crop, which was cut short by the drouth, harvested early, the land fallowed and sowed to buckwheat, which was plowed under the first week in October. But the wheat was not over four bushels to the acre, whilst that portion of the field where I manured with barn-yard manure yielded over 15 bushels to the acre.

We ought not, however, to jump at conclusions too hastily, and therefore I would simply say, that the observed results suggest to me that raw bone applications are more serviceable to my land than mineral phosphates, others in other sections have found the Charleston phosphates both advantageous and profitable; but the subject of the application of manures to the most profitable advantage cannot be easily arrived at, nor can the experiments of one serve the purposes of another.

My neighbor has used Cat Island guano on his tobacco this year, on a lot by itself, and it does not seem to have had a visible effect there. He also used it in the middle of another lot, using Gilham's Fertilizer on each side, and the Cat Island shows equally to the same disadvantage there as on the first named lot; whilst our neighbors some five miles below, used it last year very satisfactorily on their tobacco.

On the other hand, my neighbor used it on some of his ruta-bagas, on the balance of which he used Gilham's fertilizer. The Cat Island shows to great advantage in his turnips over Gilham, and Gilham shows to great advantage on his tobacco.

These and many other like results should teach us that each farmer must learn to know by actual experiment the real wants of his own soil, for the different crops he wishes to grow, and only use those that meet his own wants best. But above all, make all the home-made manure possible, and use it as far as it will go, remembering that by the process of composting properly conducted, you can add five times the bulk of your manure as a divisor and absorbent, which, by the process of fermentation in the decomposition of the organic or vegetable and animal matters, becomes equal to the manure itself, and will produce equal results. This I have demonstrated to my own unbelieving Thomas this season.

Last November I commenced to compost my stable manure with

red clay as a divisor and absorbent, and this spring I hauled out on my upland cornfield, near my house, 250 loads. The field was the admiration of the entire neighborhood, and the corn was made before the rainy season commenced, or in July. Last year my yield of wheat from this field (12 acres) was not over 20 bushels. It having been badly put up in my predecessor. This year it looks as though the yield will not be less than six or seven barrels of corn to the acre. But here, again, I can trace distinctly the effects of the application of 400 pounds of Bone Flour to the acre, on two acres, seven years ago.

To me these are instructive observations, and I give them for the advantage of my brother farmers, and hope that each will endeavor to note and report the results of their careful observation, that we may all be quickened and stirred up to renewed activity in our calling. Other observations I will report in my next. G. B. S.

[For the Southern Planter and Farmer.]

AGRICULTURAL SCHOOLS.

The history of these institutions in this country and abroad has been a history of failure rather than of triumph. This no man can venture to deny who has given the matter a candid examination. In England they have taken no hold; in Scotland they have agricultural chairs and agricultural degrees, but they are without reputation or patronage; in France there are agricultural professors of great reputation, but they are occupied with scientific investigation rather than teaching; in Germany, notwithstanding all that has been said, these institutions are looked upon with no favor by leading educators, and Baron Leibig himself declared, only a few years ago (not long before his death), that after an experience of thirty years' teaching he had not been able to discover a single redeeming feature about them—that they were, in his deliberate judgment, total failures. In New England, the ideas of Prof. Gillman, as set forth in the organization of the scientific school at Yale, are very generally adopted, which are nothing but Leibig's ideas, whose central idea is to teach only the pure science upon which the technical pursuits are based, and leave the technical part to be learned by practice subsequently in the old way. In the other States, North or South, no important public impression has been made by any of these schools. Much has been said about the Michigan school, but they have there a three years' course and only a six months' session; whereas one-half the day is devoted to recitations and study, the other to work by the whole school. It is then a half-time labor-school, holding six months session during the year. It is quite certain that upon this plan no important educational results can be obtained—no mastery of any science, or any work, or any subject of knowledge. The professor of agriculture in this school is also a

professor in another State, whose agricultural school seems to be drifting away after the new-fashioned German idea of "experimental stations" in place of educational establishments. An accurate investigation of their doings in Massachusetts shows that they are going in the same direction. In Pennsylvania they have broken down in mid career, their faculty wholly or partially disbanded, their revenues appropriated to the payment of their debts, their three model farms pointed at as objects of scorn, too melancholy to be ridiculous. In Maryland they have drifted away from agriculture to become a coaching-school for the naval and military academies of the United States.

The idea of half-time manual labor schools, where, in the language of Professor Gillman, they make a blundering attempt to eke out their support by work, while they bungle over an ill-digested course of study the other half of the day, is effete, moribund, and everywhere abandoned as utterly hopeless. It seems, indeed, that any institution which relied upon the totally unskilled labor of a lot of raw boys, ill-directed, grudgingly-performed jobbery, as its principal feature, might have been expected to end in failure, for the original idea was totally absurd and ridiculous. I feel somewhat ridiculous in attacking this old notion—somewhat as the sportsman did who crawled over a frozen marsh for half a mile and poured a heavy broadside into a lot of old decoy-ducks anchored just off the shore—wasting my powder, as it were, upon dead ducks, or performing the supererogatory task of slaughtering dead Indians.

We are witnessing everywhere the verification of the crabbed old Baron's declaration, "It is an absurd and impossible attempt." You can never successfully combine in one school, at one and the same time, the study and mastery of the science upon which the technical part of any pursuit depends with that amount of practice which will ensure the mastery of the craft. In attempting both, you will surely encounter a double failure. What, then, shall we do? Abandon the whole thing as a failure? Give up the whole theory of industrial education as chimerical? By no means. The Virginia Agricultural and Mechanical College seems to be on the high road to success. Nothing but the worst management can now turn it back in its career. Hitherto it seems to have mastered its difficulties and solved its problems wisely and well, and to have rapidly advanced in public estimation, and we trust a great future is before it as the true pioneer of success in this direction.

There are two great professions—medicine and civil engineering—from which the model of technical education should be drawn. Notwithstanding all that has been said, medical education is the most perfect technical instruction in the world. Now the model farm should be used as the medical teacher uses his hospital clinic, to illustrate and explain the great principles of the concrete science upon which his art is based; for agriculture, like physic, is both a science and an art—a complex art based upon a concrete science.

How are we to teach medicine? By compelling the student to make pills and boluses, and wash pots and bottles, and carry out bed-pans? No more are we teaching agriculture by compelling the student to do drudgery work on the college-farm. Let the student work at proper times and intervals for his own advantage and instruction, especially to inculcate the great precept, "know thy work and do it, for this is the whole duty of man." Our theory is, no man is in any wise degraded or disgraced by work, but "there is one monster in the world—that is the idle man."

At a future day, Mr. Editor, I may return to this question, if you can spare me space; for the present this is enough to ask.

CIVIS.

[For the Southern Planter and Farmer.]

PROLAPSUS OF THE UTERUS.

(FALLING OF THE WOMB.)

The June No. of the *Planter and Farmer* fell into my hands a few days since, containing an article on the above subject by P. Peters, V. S. Now, I am no veterinary surgeon, but having had some experience and uniform success in the treatment of prolapsus (properly procidentia of the womb) in the cow, I venture to suggest a plan of treatment far more easy of application than the one suggested by Mr. Peters.

I take a piece of timber about 18 inches long, make a ball at one end $2\frac{1}{2}$ inches in diameter, cutting down the balance of the piece to about $1\frac{1}{2}$ inches, boring a hole in the small end for a strong twine string, which is passed through and firmly tied. I then wash and oil the womb—also oil the timber—return the womb, and as soon as it is in the vulva, insert the ball end of the timber and push the womb to its place. I prepare beforehand to keep the timber in place by putting hames on the cow; on each side make fast a cord, and carrying it tightly around the sides; make it fast to the string through the end of the stick. To keep the cord from slipping up or down, I place another cord around the body of the cow and make it fast to the cord on the sides. Everything remains now in the position above described from twenty-four to forty-eight hours, or until the straining ceases; it is then taken away, and the cow is well.

I adopted the above plan first in a cow of my own, and have since been repeatedly applied to for instructions on the subject. I presume a dozen cases have been treated upon this plan, some of them a week old before anything was done, and it has not failed to effect a cure in a single instance. Try it, and you will never think of keeping the hand in the womb of a cow again from one to twelve hours.

Mt. Lebanon, La.

F. COURTNEY, M. D.

GRANGE DECISIONS.

BY THE MASTERS AND EXECUTIVE COMMITTEE OF THE NATIONAL
GRANGE.

We select from the "*Patrons' Parliamentary Guide*" (official) the following decisions as those most likely to be of interest to Patrons generally. We publish them as revised and adopted at the eighth annual session, February, 1875. Every master should examine the "Guide" and the amendments and the additions thereto throughout. They can be obtained free, on application to the secretaries of State Granges:

ON THE POWERS AND DUTIES OF GRANGE.

8. A Grange cannot change its name or number after its charter has been issued.

9. Degrees may be conferred at either regular or special meetings. At special meetings, called for the purpose of conferring the first, second or third degree, it is not necessary to open in the fourth degree. A Grange may close from any degree in which it has been sitting.

10. It is not allowable for a Grange to discuss the merits or demerits of a candidate.

11. No vote can be taken on any question except in the fourth degree.

12. In balloting for candidates the ballot is secret, and no member can be required to tell how he voted.

13. No person can be admitted to membership free.

14. The entire membership fee must accompany the petition, and cannot be divided among the several degrees.

15. A Grange cannot vote back to a member any portion of the membership fee.

16. A Grange can provide by by-law for more than one regular meeting a month, but must have at least one.

17. A Subordinate Grange cannot move its place of meeting within the jurisdiction of another Grange, without the consent of the Grange whose jurisdiction is thus infringed upon.

18. A Grange cannot have two places of meeting and claim jurisdiction from both as centres.

19. A person who is elected to membership or office in any manner other than by ballot is not legally elected.

20. No person is eligible to office in any Grange, either National, State, or Subordinate, who is not a member thereof.

23. A Grange cannot ballot upon an application for membership at the same meeting upon which it is received.

24. A Grange may ballot for a candidate and confer the first degree upon him at the same meeting.

25. A Grange cannot ballot for more than one candidate at the same time; each must be balloted for separately.

26. A Grange can sit in different degrees during the same meeting.

29. A Grange cannot divide into two Granges and divide the property.

30. A new Grange cannot be formed in the jurisdiction of a suspended Grange during the time of its suspension.

RELATION OF APPLICANTS AND MEMBERS TO A SUBORDINATE GRANGE.

31. No one can be held ineligible to membership in the Order on account of religious belief or political opinions.

32. Blindness does not render a person ineligible to membership.

33. A married lady whose husband is eligible, but not a member of the Order, may be admitted to membership.

34. Membership commences at the time a person takes the first degree.

35. After an applicant has taken the first degree he is entitled to all the pecuniary and other benefits to be derived from a connection with the Order, and therefore is subject to the payment of the same dues as other members, without reference to the time of his receiving the other degrees.

36. A member does not pay monthly dues to his Subordinate Grange for the fractional part of the month in which he is initiated, but from the first of the subsequent month.

37. A Grange may suspend members from membership for non-payment of dues.

38. Suspension from membership does not excuse the suspended member from payment of dues during the time of suspension.

39. A member suspended for non-payment of dues can be re-instated by the Grange upon payment of all dues up to the time of re-instatement. This rule does not prevent Subordinate Granges from adopting by-laws terminating the membership, or prescribing other condition of re-instatement, after the member has been delinquent a specified time.

40. A member is only balloted for once, and that is before receiving the first degree.

41. If an applicant is balloted for whose fee does not accompany the petition, and is elected, the election is illegal, and the degrees should not be conferred; if rejected, the rejection is illegal, and the applicant may apply again at any time.

42. After an applicant has been rejected, if a member voluntarily declares that he cast a black ball by mistake, the Master may immediately order another ballot.

43. A ballot must be held upon an application, whether the report of the committee is favorable or unfavorable.

44. A member must not disclose outside of the Grange the result of an unfavorable vote.

45. The application of a candidate can be withdrawn at any time before a ballot is ordered thereon.

CO-OPERATION A NEED OF THE GRANGE.

Editors Rural World: It may be set down as a fact, based on experience, that without economy none can be rich, and with it few can be poor. Co-operation is concerted trading—a scheme in which the resulting profits are proportionately divided for individual uses. Working men should consider it not only a duty, but a privilege, to aid in bringing about such a reform in the present methods of doing business, and in the education of the people, as will ultimately, if faithfully and honestly carried out, render it impossible for working men to be depraved and poor. Co-operation, to be a success, must be heartily entered into; selfishness must be ignored: for an indispensable requisite to success is an active, intelligent, self-sustaining care for the good of others. Indeed, this is the source, the fountain-head, of that inspiration which is so essential to progress and to ultimate success.

It is a characteristic of co-operation that it looks out of itself and thinks of the world, and how working men and women shall be benefited. True co-operation is true Christian charity, and the heart and head of every true co-operator must work harmoniously together, in order to achieve the best results and accomplish the most good for mankind. In this grasping, selfish, money-loving, money-worshipping age, but comparatively few can thus look outside themselves, and but few ever seriously consider the importance of doing what they can to benefit their fellow men, and too often forget that "he lives most who feels most, thinks the noblest, and acts the best."

Co-operation is the true pathway that leads the way to self-dependence and mutual aid, and to personal, social, and pecuniary elevation. The principle of genuine co-operation faithfully carried out will prove a lasting benefit to all who engage in it, and we predict for the enterprise which we have now taken in hand a success that will prove a gratifying exception to previous failures, resulting, as they invariably have, from bad management and an entire lack of the important elements to which we have already alluded.

St. Louis county, Mo.

LABORER.

THE GRANGE—NO ANTAGONISM.

We have not unfrequently urged upon our readers the fact that there is nor should be, no antagonism from the Grange to any other legitimate business. This is, we believe, to be the grand central idea of the Order—the basis upon which it stands, and must stand, commending it to the confidence and approval of all fair minded and fair dealing people.

These views have been urged upon the stump wherever we have been; and we rejoice to know that many of our leading speakers begin to realize the great importance of pressing this matter home to the hearts and minds of all their hearers.

The following brief essay, read by W. H. Brown, Secretary, before Liberty Grange 563, is full and forcible on this point, and it should be read and pondered by all true Patrons:

Worthy Master, Sisters and Bros.:—Let me give you a few desultory thoughts on the duty of Patrons. It is but a short time since our Order was organized in Kentucky, but we already begin to see the good effect of our labors. Therefore, let us press forward to our duty. First, let us have for our motto: Justice to all, partiality to none." Let us try to make our Order respectable and honorable to others, as well as ourselves, by attending to our duty as Patrons, and letting others alone. Let us not quarrel with the merchant, manufacturer or middle-man; let us say nothing against our neighbors.

Let us throw off all prejudice and malice, and take hold of brotherly love and charity. Let us work with and for each other as a band of brothers. Let us counsel each other in the Grange or out of it. It is said where there are many counselors there is safety. While I have but one talent, some may have five, and others ten. Brothers, you with the ten talents, help us that are weak. That is your duty. Then let us counsel freely on all subjects that may come before us:—whether for the cultivation of the soil, or cultivation of the mind. Let us cultivate sociability, equality and charity. Let us meet promptly and fill our parts conscientiously, one and all. Let us make our cause interesting to all, and make our light so shine that every farmer, from Maine to California, will see how good it is to be a Patron.—*Rural Sun*.

THE CONVENTION OF PLANTERS AT BURKEVILLE—THE INSPECTION LAWS.

Pursuant to the call of the District Grange, of Farmville, in March last, a Convention of tobacco planters was held at Burkeville, August 12th, for the purpose of considering the inspection laws, and especially of harmonizing the views of the planters on this subject. Thirteen of the tobacco producing counties were represented. After much discussion, the following resolutions were adopted:

Whereas, owing to the disagreement between the representatives themselves of the planting interest, and between them and the representatives of the trade, no changes or amendments to the tobacco inspection laws could be made by the last General Assembly, and whereas, that body, after exhaustive discussions on various changes sought to be made, indefinitely postponed the whole subject, and referred it back to the people for their consideration and discussion; therefore, be it

1. *Resolved*, That this Convention re-affirm and re-adopt the resolutions passed by a large number of the counties during the past winter in regard to the retention of State inspection of tobacco, under sworn bonded State inspectors, and for such changes in the law as forbids the conversion of State into free warehouses.

2. *Resolved*, That section 56 of chapter 85, Code of 1873, ought not to be repealed or changed so as to make inspection optional, but that the said section should be so amended as not to require strips to be inspected, if said strips are put up of tobacco once regularly inspected.

3. *Resolved*, That the annually recurring efforts of warehouse owners and controllers, (in connection with the trade, to break down State inspection that the former may control changes and the latter get fuller control of the planters' products,) make it necessary for planters to seek to place this question wholly under State control; therefore, this Convention approves of the general provisions of Senate bill No. 190, known as the State Warehouse bill, with such changes and modifications as to make the law applicable to the different markets in the State.

Be it also—

Resolved, That the rules and regulations of the Tobacco Exchange in Richmond are unjust, arbitrary and oppressive, and that, as planters, we are unalterably opposed to them; that the attempt of this self-constituted close trade association to appoint a sampler of tobacco of their own, in direct opposition to the law which makes the inspector the sampler is characteristic of the trade combination, the rules and regulations of which as they now exist are an imposition upon the planters of Virginia.

THE RIGHT KIND OF A WIFE.

What a blessing to a household is a merry, cheerful woman—one whose spirits are not affected by wet days or little disappointments—one whose milk of human kindness does not sour in the sunshine of prosperity! Such a woman in the darkest hours brightens the house like a piece of sunshiny weather. The magnetism of her smiles and the electrical brightness of her looks and movements, infect every one. The children go to school with a sense of something great to be achieved; the husband goes into the world in a conqueror's spirit. No matter how people annoy and worry him all day, far off her presence shines and he whispers to himself, "At home I shall find rest!" So day by day she literally renews his strength and energy. And if you know a man with a beaming face, a kind heart and a prosperous business, in nine cases out of ten you will find he has a wife of this kind.

HOW TO PUT CHILDREN TO BED.

Not with a reproof for any of that day's sins of omission or commission. Take any other time than bed-time for that. If you ever heard a little creature sighing or sobbing in its sleep, you could never do this. Seal their closing eyelids with a kiss and a blessing. The time will come all too soon, when they will lay their heads upon their pillows lacking both. Let them, then at least have this sweet mem-

ory of a happy childhood, of which no future sorrow or trouble can rob them. Give them their rosy youth. Nor need this involve wild license. The judicious parent will not so mistake my meaning. If you have ever met the man or the woman, whose eyes have suddenly filled when a little child has crept trustingly to a mother's breast, you may see one in whose childhood's home, Dignity and Severity stood where Love and Pity should have been. Too much indulgence has ruined thousands of children; too much Love not one.

SHORT HINTS CONCERNING SICKNESS.

When you are sitting up at night with a patient, be sure to have something to eat, if you wish to save yourself unnecessary exhaustion.

Remember that sick people are not necessarily idiotic or imbecile, and that it is not always wise to try to persuade them that their sufferings are imaginary. They may even at times know best what they need.

Never deceive a dying person unless by the doctor's express orders. It is not only wrong to allow any soul to go into eternity without preparation, but how can you tell but that he has something he ought to tell or do before he goes away?

In lifting the sick do not take them by the shoulders and drag them up on the pillows, but get some one to help you. Let one stand on one side of the patient, the other opposite, then join hands under the shoulders and hips, and lift steadily and promptly together. This method is easy for those who lift, and does not disturb the one who is lifted.

Do not imagine that your duty is over when you have nursed your patient through his illness, and he is about the house, or perhaps going out again. Strength does not come back in a moment, and the days when little things worry and little efforts exhaust, when the cares of business begin to press, but the feeble brain and hand refuse to think and execute, are the most trying to the sick one, and then comes the need for your tenderest care, your most unobtrusive watchfulness.—*"Home and Society"*—Scribner.

HOW TO MAKE RAG CARPETS.

If you want something for your kitchen floor, firm, warm and durable, from which spots can be easily removed, which can be shaken, turned, and be as good as new again for several years, use rag carpets. They can generally be obtained of carpet dealers at from sixty cents to one dollar a yard; but often a smoother and handsomer article can be made at home, at least ready for the loom. For this purpose save the old clothes—old flannels, sheets and under-garments, old dresses—in fact everything which will make long strips. Oil cloths of good colors are doubly valuable. Calicoes not too much worn

are excellent material. Cut into strips about an inch wide, sew end to end, and wind smoothly into balls of about one pound weight. Allow from one and one-fourth to one and one-half pounds of rags to a square yard of carpeting. Collect all odd pieces of any color for the mosaic or hit-and-miss stripe. Cut and mix these thoroughly before sewing, so as to make this stripe as uniform as possible. A few pounds of remnants from a woolen factory or soft listings of any needed color, make a nice stripe and require little sewing. Do not put too much black into a kitchen carpet, as it is not a strong color and shows the dust more than other colors. A stripe of several shades of red brightens up a carpet wonderfully—and who objects to a little brightness in the kitchen? White woolen rags take a nice cochineal red, white cotton a durable green from fustic and logwood set with blue vitriol, A cinnamon color may be dyed with copperas. Select a coarse strong warp of some dark color—brown and slate colors are good—allowing one pound of warp for every three and one-fourth yards of carpeting. Keep the exact weight of rags and warp to compare with weight of carpet when returned, and employ a good weaver. Many prefer a kitchen carpet put down with rings, as it can thus be easily be taken up and shaken.—*Scribner*.

BRINE FOR KEEPING BUTTER.

The art of keeping butter under brine is no new discovery, yet comparatively few ever use it for this purpose. Butter cannot remain perfectly sweet and fresh if exposed for any length of time to the action of the atmosphere, but gradually loses its good flavor, even if it does not take on a decidedly bad one instead. The secret of keeping in brine, is simply to keep away the air. Water would be just as good as brine if water would remain sweet, but, as we all know, water lying undisturbed soon spoils for drinking or culinary purposes. Salt keeps the water sweet, while that keeps the air from the butter. Butter preserved in brine does not, as many suppose, grow saltier by contact with the brine. Water would take out a portion of the salt from the surface of the butter, but brine cannot penetrate and increase the salt in the butter to any practicable extent.

The following receipt for a butter pickle is going the rounds of the agricultural press, and it may be better than pure brine, but we should doubt it. Pure brine has kept cakes of butter in our own cellar perfectly, through the warm weather of the present summer:

To three gallons of brine, strong enough to bear an egg, add a quarter of a pound of nice, white sugar, and one tablespoonful of saltpetre. Boil the brine, and when it is cold strain carefully. Make your butter into rolls, and wrap each separately in a clean, white muslin cloth, tying up with a string. Pack a large jar full, weight the butter down, and pour on the brine until it is submerged. This will keep really good butter perfectly sweet and fresh for a whole year. Be careful not to put upon ice butter that you wish to

keep for any length of time. In summer, when the heat will not admit of butter being made into rolls, pack closely into small jars and, using the same brine, allow it to cover the butter to a depth of at least four inches. This excludes the air, and answers very nearly as well as the first method suggested.

If every family using butter, delivered fresh from week to week, would prepare a pickle and keep the lumps immersed in it all the time till wanted for the table, there would be less complaint heard about poor butter.

THE ACTUAL DAMAGE.

Reports of the grasshopper ravages throughout Kansas and the territories are received with incredulity by eastern farmers. Persons who never have seen a squadron of these devouring pests busily at work devastating a *thousand* acres of tilled land, beside wild herbage and woods, cannot understand the idea of insect life being so widely destructive, and any body of locusts as possessing appetite and destroying capacity equal to the utter demolition of fields, and farms, and the prospects of fortunes of those who were but lately independent and wealthy land owners. Such is, however, the case, strange as it may seem, and it no doubt does appear strange, and almost ridiculous to eastern people. They came as a tornado comes, suddenly, and all in a heap, rendering all precautionary measures against their approach futile, as indeed it is impossible to devise any method by which they can be frightened or driven away. They have the appearance of a swarm of bees, only a great deal more so, and flying low, in myriads, darken the air, and create a most sickening stench from the vast number of their dead, scattered constantly upon the ground; for, absurd and exaggerated as the statement appears, there are quantities of them that die of starvation, unable to find enough to support life. When they were observed approaching—this fact being heralded by a sudden darkness, as if a thunder cloud had arisen, the dismayed farmers housed their cattle, and retreating in doors, looked from windows at the swift and remorseless destruction of their crops going steadily on, and heard, with a mixture of fear and astonishment, the continual fall of the grasshoppers against the doors, windows and roof, and frequently they fell in a thick green mass down the chimneys, and crawled over the disgusted families' own persons. As a resolute man goes forth after a terrific storm, which may have wrought his property severe and irreparable damage, the farmer looks abroad, after the grasshoppers have bitten off every green thing on or about his estate, and may console himself with the fancy that they will not come again in a hurry, and begins heroically to retrieve his fallen fortunes by putting in a late crop, or he may sit, like Marius, over the ruins of Carthage, and wait for the coming of winter, and that keen want which is sure to attack him and his, before the trees have budded again. Deprived of the feed even for

his horses and cattle, and unable to buy more, for it was sold at a high price, and at a great distance off, the farmer not only contemplated the loss of revenue, but witnessed the famine and slow starvation of his stock—a sight particularly pitiable to human owners, after watching their faithful efforts to assist in getting in what should have been an abundant harvest.

It is truly lamentable, to think of men who were formerly well-to-do, as earnestly soliciting a general contribution of food and clothing to prevent the immediate suffering of wives and children. If those benevolent persons who send off cases of clothing only fit for the hook and walls of the chiffonier, would reflect on the sensibilities they wound, the probability is that there would be more charity in thought and action, and more worthy bestowals made. It is not a supposable case that one grasshopper season could produce so much want; it is brought on by the havoc made by them after one, two or three successive years.—A. R. H.

PREPARATION OF WHEAT LANDS.

The Springfield Grange, Michigan, has been discussing the above question. We find the following report in the *Adrian Times*:

J. B. Stephenson gave his system, which is: If he summer fallows, plows the ground directly after corn-planting, then at leisure times, harrows and cultivates up to time for seeding, which is the 15th of September. If he plows the fallow the second time, he does it shallow, but his usual practise is, to plow the sward for corn, sow oats or barley after the corn, then as soon as the field is cleared of the oat or barley crop, plow deeply, and harrow both ways thoroughly, and then let the ground rest until a few days before seeding time, so as to allow time for the shelled oats or barley to come up. Then he fits it well with cultivator and roller, and drills about six pecks per acre; believes the roller as essential upon some soils, in the proper preparation of the ground for wheat, as the harrow or cultivator; sells when he can get the best price.

Captain H. R. Case said that his system was about the same. He likes especially to have his wheat ground plowed deeply and well prepared, but sows earlier. He sows as soon as practicable after the first of September; thinks this earlier sowing much safer in the long run than late sowing. Has raised in instances good crops of wheat sowed in October; drills about six pecks per acre. Some years ago he kept an account of the expense of raising wheat and found that it cost him about fifty cents per bushel to put it in his granary, making no allowance for wear of tools, or interest on land investment. He markets his crop usually in February, if the price is satisfactory, for then his teams are at liberty. Would not neglect or delay the putting in of a crop for the sake of marketing, unless in exceptional instances.

Don Richards said that some years the insects injured wheat, if sown as early as the first of September. He lost his own crop sometimes by insects, by sowing too early; drills about six pecks per acre upon well prepared ground; markets when he has liberty from other farm work to attend to it, sells often in February when the market suits.

William Onsted said that his practise was about the same as Mr. Case's, but thinks that taking one year with another, about the best time for sowing was from the 5th to the 10th of September, according to his experience. Markets in the winter if the price suits; for then he has more time to attend to it. Drills invariably six pecks per acre.

George Sheler sows any time that he is in readiness before the 20th of September, has raised good crops, sometimes sowed in October, but more frequently it failed when sowed so late. Drills six pecks per acre and averages good crops. Markets generally in the spring, frequently in June, or after corn planting if the prices suit.

E. A. Taylor said that the best wheat he ever raised was on summer fallow, but latterly had been compelled to change his system somewhat on account of losing his clover from drought. He now sows wheat after oats and corn at the rate of two bushels per acre. His time of sowing is from the 8th to the 15th of September, varied considerably by the season. His practice has been of late to thresh and market directly after harvest, if he could attend to it, but would advise threshing in October or November, and marketing in winter, for then there is more leisure and the winter wheat market averages fair generally.

J. B. Drake would agree generally with those who had preceded him. Sows his wheat as soon after the 5th of September as he can get his ground well prepared. Markets in the winter generally, for then there is time to attend to it.

J. O. Maxwell was decidedly in favor of sowing early. He had noticed that his wheat crops that were earliest sowed averaged much better in quality and yield than the later sowed ones. Sowed as soon after the first of September as possible. Did not state his reason for selling.

MANURE IN GARDENING.

Mr. Hardaway, in his paper on market gardening, read before the Georgia State Agricultural Society, at its last meeting, said that to succeed in raising fine vegetables, manure must be used lavishly. "Last spring," he adds, "a farmer friend came to look at my garden, and after wondering at the quantity and size of the vegetables, he particularly admired a very large bed of turnips, and they look like dwarfs, compared with yours. He was amazed when I informed him I had put fifty-two wheelbarrows of manure on that single bed. It is astonishing how much one acre can be made to produce. As

much as eighty-two tons of beets have been gathered from one acre." Mr. George W. Gift is said to have raised one thousand bushels of turnips to the acre, for the Memphis market, and it is stated in one of the Northern agricultural journals that five hundred bushels of Irish potatoes were raised on one acre. Seven thousand cabbages can be easily grown on one acre. Mr. Gregory, a well known market gardener and seedsman, at Marblehead, Massachusetts, has sold in the Boston market as much as thirty-four tons of squashes per acre, and as high as one hundred and forty dollars per ton, the usual average price being about thirty-five dollars per ton, being one thousand one hundred and ninety dollars per acre. Mr. Gregory also says it is not uncommon for the gardeners near by to raise from seven hundred to nine hundred bushels of onions per acre, and prices generally average about two dollars and fifty cents per barrel. This is the result of the *intense* system of manuring. Mr. Peter Henderson, the great market gardener, puts as much as one ton of guano to the acre, and sells as much as one thousand dollars per acre.

MELLOW SOIL AROUND TREES.

Unless the surface of the ground is mulched around young trees over an area of six to ten feet in diameter, the ground should be kept clean and mellow. Every farmer knows that a hill of corn or potatoes will not amount to much unless cultivated, and yet there are many who will neglect to give the same care to a tree which is worth a hundred hills of either of the former. In rich soil, trees may grow rapidly without cultivation, and no amount of grass or weeds will retard them; but there are other things besides growth to be looked after. If the weeds and grass are allowed to grow up around the stems of apple, peach or quince tree the bark will become soft near their base by being shaded, and thereby be in a suitable condition for the reception of the eggs which will eventually become peach or apple borers. Take any dozen young apple trees in sections where the apple-borer is abundant, and allow a portion to be choked with weeds, and the remainder well cultivated, and then watch the result. From our own experience, we believe that the chances are nine to one in favor of those cultivated being exempt from this pest.—*Nat. Agriculturist*.

TOO POOR TO TAKE A NEWSPAPER.

An anecdote is told of a farmer going one day to the office of a New York journal and ordering his paper stopped, because he was too poor to take it any longer.

"Suppose we make a bargain," said the editor, "in this way: Go home and select a hen that shall be called mine; sell the eggs that the hen lays during the year, and send the proceeds to me as your subscription for the paper."

The farmer was pleased at so easy a way to pay for his paper, and readily consented. The result was that during the year he paid for the paper twice its regular price of subscription.

This is by no means a pure fiction, for the same may be true in a great multitude of cases. Almost every one wastes and throws away more than enough money during the year to get a weekly or daily paper that would furnish him with intellectual food, and keep him posted in the busy, stirring events of the day. A very small retrenchment in the luxuries that almost every one indulges, would secure a daily visitor full of gossip about the doings of the great world around us; full of stirring events in the history that is every day being made in our own country, and full of useful, general information, and facts in literature, science and art. Besides, it is the duty of the people to support the press, for it has always stood as a grand bulwark between them and political military oppression; it has sounded the notes of warning that has often roused them to action; it has striped the borrowed cloak from corruption and venality in high places, and showed them in all their deformity, and is to-day the great friend of education, justice, religion and peace. The press speaks everywhere, at all times, carrying light into places where otherwise perpetual darkness would reign. And when we remember what the world would be without the press—how darkness, ignorance, vice and oppression would flourish unopposed, let no one any longer say that he is too poor to take a newspaper.—*Printers Circular.*

SHOULD HORSES WEAR BLINDERS?

This is still a mooted question among horsemen. The following from a foreign paper makes some good points on the negative side:

We never could see what vice or deformity lay in a horse's eye, that should make it necessary to cover it up and shut out its owner from at least two-thirds of his rightful field of vision. The poets say that old age looks backward; but we never heard such an idiosyncrasy charged upon the horses. The theory that a horse is less apt to be frightened when shut out from everything behind him, we suspect to be a fallacy, else saddle-horses and war-horses would be duly blinded. Every horse is as familiar with his own carriage, as with his own tail, and, as far as his "personal" fortitude is concerned, is no more disturbed at being pursued by one than the other. As for other scare-crows that come behind, they are mostly so familiar to the animal, that the more fully the horse can perceive them, the more quietly does he submit to their approach. Then it is such a pity to cover up one of the most brilliant features of this most brilliant creature. The horse has borne such a hand in the civilization of this rough-and-tumble world, that it seems not so much a cruelty as a discourtesy, as well as a disgrace, to hide his form with embar-

rassing toggery. No wonder we estimate the force in the world as horse-power; no wonder the Romans and the Germans, each in their own languages, designated their aristocracy as riders; no wonder their descendants made chivalry a synonym for their highest virtues. Let the horse be given his due, and unblinded. The check-rein is another nuisance in harness-wear which has almost entirely disappeared from England, the army having at last given it up by order of the commander-in-chief, Sir George Burgoyne.

DOGS AS SHEEP PROTECTORS.

I used to breed cattle, but having a natural fondness for sheep, and an opportunity to purchase a couple of Scotch colley shepherd dogs, removing my fears on the score of destruction by mongrel curs, which deters so many from keeping sheep, I concluded to try the experiment which has resulted so satisfactorily.

In my stock of 100 ewes I have half a dozen bells, and in case of danger the sheep all run to the dogs for protection. This familiarity between the dogs and sheep, with the watchful care exercised, is one of the prettiest sights in the world. These faithful guardians of the flock are ever on the alert day and night. The rapid tinkling of the bells at once arouses the dogs; and about three weeks ago, in the middle of the night, I heard an unusual disturbance among the sheep, but was so confident that the dogs would be equal to the emergency, that I did not come down stairs. In the morning I had the satisfaction of seeing one of the worthless curs, which go prowling about at night, lying stone dead along the fence, with marks on him of a desperate fight. I should say, however, that I made one cross by putting my shepherd dog to a Newfoundland slut, and kept the choicest of the litter. He has proved a fine, large dog, about twice the weight of either of the shepherds, and though never interfering in what he seems to consider their especial duty, is always on hand ready for service.

It is curious to observe how, when strange dogs cross the place, the two shepherd dogs will take a survey, and if they see much business (they are themselves great fighters) by a kind of silent understanding and arrangement the three dogs go together; and although we in this country are overrun with all kinds of dogs, there seems to be a general fear of my three dogs, and we are seldom disturbed. I recommend the purchase of one or two good shepherd dogs as the very first step toward keeping sheep.—*Practical Farmer.*

Labor to keep alive in your breasts that little spark of celestial fire called conscience.

SOW SOME RYE FOR WINTER PASTURAGE.

It will pay to sow rye for winter pasturage, and there is no disputing the fact that this crop, as one for forage, has been too much overlooked in the West. Every farmer between the thirtieth and fiftieth parallels should have his rye field as well as his field of corn, wheat, oats and potatoes. Valuable as this grain is for feeding purposes, its greatest value lies in the large amount of pasturage it affords at a season of the year when other kinds of pasturage fail. In this respect it is available as feed for stock in the fall after most of the other grasses become worthless. Again, in the spring, it affords good pasturage earlier than any other grass or grain, and continues to furnish an abundance of good pasturage until grass is large enough to make good feed.

In grazing land it is all-important to remember that trampling it by stock in wet weather is injurious. A luxuriant rye patch bears winter grazing with less injury to the soil than any other crop we are acquainted with.

After rye has advanced in age and growth sufficiently to stool out, it is not damaged by the trampling of a reasonable amount of stock, whenever the soil is in a proper condition. Even when this crop is desired for the grain, it may be grazed to a reasonable extent in the fall, winter and spring, which is said to have a tendency to increase rather than diminish the yield. Even if fed the entire winter through, and to the sacrifice of it as a grain crop, and the loss of it as such, it is still said by those who have tried it, to pay at least 100 per cent. on the cost of the crop as an investment.

Rye pasturage is an excellent food for milch cows late in the season, for it improves both the quantity and quality of milk, and it is particularly valuable for feeding to stock while they are being fattened with corn or corn meal.

If it is not desired by the farmer to reap and thresh out his whole crop of rye, the lambs and calves can be pastured on it until toward the last of May, when they can be taken out and the grain allowed to head, and twenty to twenty-five hogs per acre can then be turned into the field, where they should be allowed to remain until they have eaten all the grain; then they are to be fed upon corn—three to five bushels per head usually being deemed a sufficient quantity to fit them for market. In this way hogs can be grained early, which we believe would be more economical than feeding green corn as is usually done, as the cost of labor would be materially lessened.

The time for sowing this crop is somewhat important. If sown so early that it will joint in the fall, the crop will fall down and become sour at the joints, and it is unfit for pasturage thereafter. In central Missouri it is found to be a good plan to plant an early-maturing variety of corn, such as the Yellow Galena or the Early Ohio Dent, which may be planted as late as from the 1st to the 10th of July. When this is to be laid by, after the last plowing with the double shovel, two bushels of rye to the acre should be sown broadcast and lightly covered with a cultivator or other similar imple-

ment. If it is to be sown where potatoes were grown, the rye should be put in immediately after digging the potatoes in August or early in September. Sown after either of these crops, it will generally cover the ground completely before winter with an abundant growth of herbage, affording rich pasturage during the winter and early spring for all kinds of farm stock.—*Rural World*.

COST OF THRESHING.

Wheat is the great money-crop of the Middle, Western and Pacific States, and here its early marketing is often one of the pressing necessities of the farmer. This requires that the grain be threshed and cleaned as speedily as possible; hence machinery of great efficiency and motive power, especially steam power, are found most economical. It will be seen, by consulting the accompanying tables, that the smallest total cost of threshing wheat—5.8 cents per bushel—is found in California, where the most extensive machinery is used. The greatest cost—19.2 cents—is in South Carolina, where steam machinery is unknown, and where the planters, to a great extent, thresh their own crops. In northern New England it ranges from 10 to 13 cents per bushel. In the Middle States, it runs from 7.7 cents in Pennsylvania to 10.5 in New Jersey. Maryland averages 6.8 cents. The average increases to the southward, varying from 9.7 cents in Virginia to 19.2 in South Carolina. The Gulf States range from 14.1 cents in Texas to 16 cents in Mississippi. The inland Southern States from 8.7 cents in West Virginia to 12 cents in Arkansas. North of the Ohio river and west of the Mississippi, no State averages more than 7½ cents, while in Nebraska the cost averages as low as 5.8 cents. On the Pacific coast, California averages 5.8 cents, and Oregon 6.4 cents. The cost of threshing oats is generally about half the cost of wheat, ranging from 3.4 cents per bushel in Nebraska to 13.3 cents in Massachusetts. In the Middle and Western States the general average is between 4 and 5 cents.—*Department of Agriculture Report for July*.

POTASH IN WHEAT.—Why is it, when growing wheat or rye is being struck with rust, that a little plot here and there where stumps, logs or brush have been burned to ashes, will be bright and free from the attack of rust? Because the growing plants employ potash and silica not only to give stiffness and rigidity to the straw, but to form, as it were, a glassy coat of mail over the surface of every leaf, glome and straw to fortify the tender and delicate parts against the attacks of spores that are floating in the atmosphere. We all know how readily substances in the atmosphere are turned away when they come in contact with a glassy surface. Potash and sand are the essential elements of glass. The roots of growing plants have the power to employ the sharpest sand and potash to form a thin, elastic, glassy covering which is spread over the surface to exclude moisture, and to repel any attacks of fungus.—*Practical Farmer*.

Editorial Department.

NOTES FOR THE MONTH.

This month takes its name from being the *seventh* (septem, seven) in the Roman calendar, which counted from March as the first month in the year. This is a very important month to the farmer, for the very important work of "fallowing" for wheat or winter oats. This season, too, is propitious for the work, which should be pushed forward as rapidly as possible. For wheat we prefer two fallowings, for the land should be very fine and mellow when sown. No crop can flourish in badly prepared land. Let us not be afraid of deep plowing where there is a good subsoil. No one could doubt about this who has seen the crops which grow on the batteries which have been levelled near the city. And another striking illustration of the thing has recently been afforded, where the pipes to the "new reservoir" were laid down the past winter and early spring. In a piece of land adjoining the "reservoir," where corn has been planted, the ditch for the pipes ran through the field, and along the track of this ditch filled in with the red clay subsoil the growth of corn was, early in the season, greatly superior to that on the adjoining land. It looked as if it had received a dressing of stable manure. Beyond the corn, on the west, nothing was planted over this ditch, but the surface contains a rank growth of what is called "lambs-quarter" as high or higher than a man's head.

RYE.—If rye is intended for pasturage sow as early this month as possible—better to have been done in the latter part of August. It pays exceedingly well on good land, and gives butter a rich, golden tint the whole winter. In the spring, it can be plowed up and planted in corn, or the cattle can be removed from it, and it will make a crop for soiling or for grain. If used for grain, the straw can be sold to the collar-makers for a good price. If intended for soiling, rye can be sowed from 1st September to 15th November. If sowed late, the land should be manured, or be previously in good heart. It is an excellent crop for soiling, comes in early, and is almost indispensable for persons who want good butter and milk early in spring. If sowed early for pasturage, put one bushel to five pecks to the acre. If for grain, one and a half bushels, and if for soiling, one and a half to two bushels. It may be sowed on fallow or in the corn, as will presently be directed for winter oats. Rye is an excellent crop with which to sow clover and the grasses, the last of August or first of September. It lays close to the ground, and thus protects the young grass in winter, and never grows so rank or tumbles, so as to smother it in the spring.

WINTER OATS.—We might say much on this crop, which we regard as very valuable for the Virginia farmer, as being much more certain, and more productive than the wheat crop. In the September number of this journal, 1874, will be found a very good article on "winter oats," by Dr. Walker, of Goochland, a very intelligent and skillful farmer. He says, "We know of no crop which admits of being seeded, without objection, through so long a period of the year. We know July is not too early to begin, and that it may be continued with safety until October." Where it cannot be seeded in the fall he advises it in the spring in place of the "uncertain spring oat," which he says, "like wheat, seems to be becoming more and more uncertain every year, and that a substitute crop is greatly needed for it as for wheat." One great advantage of this crop is that it

may be baled at much less expense than wheat can be prepared for market, and that the competition in its sale will be less than that of wheat. Virginia now has to compete with the teeming West in the production of wheat. On account of the bulk of hay the competition will be much less in the sale of winter oats. We have to compete with the Middle and Northern States in hay, and not much with the West. In the case of wheat we have the United States, and indeed the whole world as our competitors. Winter oats may be sowed on fallow or on corn land, the last of August and first part of September being the best time for doing so. On corn land, it should be seeded while the corn is standing. If the ground has on it much grass, we would run the plow two or three times between the rows, then sow and drag in with the five-tooth, expanding cultivator. If tolerably clean, sow first, and then run the cultivator two or three times in the row. If the corn has been cultivated on the mould-board plan, then the cultivator must be used to level down the land, the oats sown and then gotten in with the cultivator. These remarks apply also to rye. Immediately after the grain is gotten in, clover and the grasses should be sown (and that before a rain), if it is designed to put the land down to grass. The quantity of seed of the oats should be one and a half to two bushels per acre. When seeded late at least two bushels should be used, and two and a half would not be too much, as they have little time to tiller, and the later sown the more liable to winter killing.

PULLING FODDER.—This is the month for pulling fodder if done at all. Many believe that the corn is more injured by stripping off the fodder than the fodder is worth, particularly when the expense of the operation is taken into account. Such persons cut the corn down after the grain is fully matured, and feed stalk and all together, after gathering the corn. This, too, is a heavy business, and there is great waste in the feeding. The practice of cutting up the stalks with a cutting knife, we do not believe can pay. We advise that some fodder should be pulled, enough at least to feed teams on when at hard work, for there is no better feed than fodder. "Racers" prefer it to any other long feed, and what is necessary for race horses to secure good condition, speed and bottom in the severe contests to which they are subjected, must be excellent feed for work horses. We think if we should be favored with good weather and have good hands, that fodder pulling will pay. An experienced farmer states that a good hand will pull in good corn 500 pounds per day, at the same time there is no doubt but what the corn is decidedly injured if the fodder is pulled time enough to make good feed.

MANURE—Which is on hand should be hauled out, and put on land already fallowed, and dragged in with the grain. This may be done this month for oats and rye, and for the wheat which is to be seeded in October.

CLEANING UP—Should be done in spare moments. Bushes and briars grubbed up, and ditches opened.

POTATO ONIONS—Must be planted out now, if not previously done.

TURNIPS FOR SALAD.—It is not too late to sow turnip seed for salad. Sow either "Seven Top," which will live during the winter without protection, or "White Norfolk," which makes better salad, but requires protection.

STRAWBERRIES—Must be worked all the time and kept clean of grass. This is a good month for setting out plants of the strawberry, if a rainy season can be hit upon. Many prefer spring planting, as the ground is then made clean, and less work is required. On the other hand, planting in this month, will produce fruit enough the next season for table use for the family.

MEETING OF THE EXECUTIVE COMMITTEE VA. STATE AGRICULTURAL SOCIETY.

The Executive Committee of the State Agricultural Society met at Buffalo Springs, Mecklenburg county, August 11, 1875—Col. W. C. Knight, president, in the chair, and E. G. Leigh, secretary. Present: Messrs. Harrison, Banister, Bradford. Moore, Beverly, Newman, Ficklin and Sutherlin.

The following resolutions were adopted:

Resolved, That B. Johnson Barbour be invited to deliver the annual oration before the general meeting of the Society at its next Fair.

Resolved, That the Committee on the Fair Grounds be authorized to make the necessary preparations in changes and repairs at the grounds, with due regard to the economical expenditure of money.

It appearing that the privilege of renewal of life membership certificates has been abused, it was

Resolved, That hereafter the secretary shall not issue such renewals except in cases where the holders shall make an oath before a justice or notary that his original certificate has been lost or accidentally destroyed; and if it should afterwards be found that it will be surrendered to the secretary, which certificate shall be filed by the secretary in his office; and that the secretary be instructed to call in, by public notice, all duplicate certificates which may be now held by any life member.

Resolved, That the admission to the grand stand be fixed at twenty-five cents, and that the tickets be surrendered at the door without checks.

The proposal of T. L. Crouch to lease the Fair Grounds for five years, was unanimously rejected.

Resolved, That the President be authorized to contract with an artist to photograph prize articles and animals of the Fair; and that the building known as the art gallery be appropriated to the object.

Resolved, That the President be authorized to furnish such refreshments as he may think proper for the officers and guests of the Society at the next Fair.

The committee re-assembled, President Knight in the chair.

The resignation of Col. J. H. D. Ross was received and accepted, and Mr. Wm. T. Scott, of Charlotte, was appointed to the vacancy.

The Governor of Virginia having signified his purpose to name some day during the next Fair for the inauguration of the statue of Gen. Stonewall Jackson, and expressed to the President of the Society his willingness that this committee should name the day which would least interfere with the operations of the Fair,

Resolved, That it is the opinion of this committee that the first day of the Fair, October 26th, would be the best time for the ceremony, and that the President be requested to communicate this resolution to Gov. Kemper, with an expression of our thanks for his courtesy.

Resolved, That the officers and cadets of the Virginia Military Institute be invited to attend the next Fair.

The following delegates were appointed to the various local fairs to solicit contributions to the State Fair: Culpeper, James Newman, R. B. Haxall, R. Perin Graves; Staunton, S. W. Ficklin, W. A. Booker and General Wm. McComb; Winchester, General G. S. Meem, Thomas Hendson and Col. Thomas Smith; Danville, D. Banister, R. V. Gaines and Thomas Watkins; Lynchburg, S. C.

Corsan, Prof. M. G. Elzey, and J. C. Featherston; Petersburg, A. H. Drewry, John Dodson and Dr. R. E. Hankins.

With a view of comparing notes and making a more perfect system for the management and conduct of the Annual Fairs,

Resolved, That the President, Dr. S. P. Moore, and the Secretary be requested to attend the Fair of the neighboring State Agricultural Society, of North Carolina, to be held in October, and consult and confer with the authority thereof, and report to this committee for its consideration any changes and improvements resulting from the conference and their own observation.

The committee then adjourned to meet in Richmond, October 25th, 1875.

THE ABILITY OF VIRGINIA TO CONTINUE A WHEAT-GROWER WITH PROFIT.

This is a vital question certainly with the people of Virginia; and we are glad to see that it has been taken up and discussed in a quarter perfectly accessible to the farmer. We refer to the *Southern Fertilizing Company* of this city. The pamphlet lately issued by that company on Grain we have examined with great interest, and confess that we have nothing to add to the careful treatment of the matter so manifest on every page. Inasmuch as the facts presented are drawn from the most reliable sources, we hope that every farmer who receives a copy of the pamphlet will preserve it for reference.

This Company has given much attention to the production and movement throughout the world, of most of the staple crops, and having distributed the results of its investigations generally over this State, no farmer, in our judgment, has now any excuse to plead for ignorance in a matter of so much concern to his welfare. It is plain that the more a man knows about his business the better he is able to prosecute it.

T. S. COOPER writes us:

Necessity compels me to correct an error seen in Mr. A. M. Bowman's advertisement in your last number. The reputation of "Royal Beauty" is too well known to leave Mr. Bowman's advertisement pass unnoticed. "Royal Beauty" won first prize at Virginia State Fair, but mistake was made by judges in drawing it out on line in book, as Mr. Bowman's name stood next to mine, and first prize was written on his line instead of mine, and Mr. Bowman made the remark to me in presence of Mr. Echert, of Allentown, and others, that it must certainly have been a mistake. We went and saw two of the judges, and they both said, in presence of Mr. Bowman, that they had awarded first prize to my sow, "Royal Beauty," but could not correct error in book, until chairman of committee was present, and he having left, the error was not corrected as it ought to have been before I left the grounds.

Mr. Bowman has a fine herd of Berkshires and his two best sows, "Hillhurst Rose" and "Carlotta" I sold him, but neither of them can begin to travel at the Fairs with "Royal Beauty."

ST. JAMES HOTEL.—This new hotel situated in the very heart of the city is second to none in this or any other city. The fare is excellent, and nothing is left undone by the Proprietor that can minister to the comfort of the guest. Besides the price is low. See advertisement.

RICHMOND DISTRICT COUNCIL.—The Richmond District Council will meet in this city on September 15th, at 10 o'clock A. M. The Subordinate Granges of all counties trading in Richmond are entitled to representation. Masters and Past Masters and their wives who are matrons are members of this Council, and each Subordinate Grange is entitled to three duly elected delegates. It is suggested that one of the delegates be a lady. Each grange is required to pay a fee of \$2.00 upon the admission of its delegates. Delegates should bring a properly authenticated certificate of appointment. For form see regulations. By order of the Master.

T. L. PAYNE, Secretary.

A NEW HOTEL AT THE GREENBRIER WHITE SULPHUR.—By a contract just confirmed by Judge Jackson, of the United States Court for West Virginia, the Greenbrier White Sulphur Springs have leased to Peyton & Co., for five years a sufficient portion of the grounds, with all the privileges thereof, upon which to erect a new hotel, to cost \$40,000. The lessees are to furnish the money, and at the expiration of their lease the building is to be acquired by the company at its appraised value. The site selected is within the present inclosure, and almost opposite to and but little distance from the Chesapeake and Ohio railroad depot. The hotel is to be kept open the year round, and will be an eating place for passengers going east and west. It is to be finished by June 1st, 1876.

THE CAPABILITY OF VIRGINIA LANDS TO PRODUCE HEAVY CROPS.—Mr. Abraham Warwick, whose place is situated on the Brook Turnpike, about five miles from Richmond, raised this season, and garnered in good order, eighty-four bushels of Fultz wheat, from one bushel and three pecks, seeded on a lot of about *two acres*. Mr. Alfred Pearson, his neighbor, secured, in good order, thirty bushels of white wheat to the acre, on his crop of eight acres. We venture to assert that no lands on earth, with the same attention given to both, will produce greater yields than ours in Virginia.

WHITE SULPHUR SPRINGS, WEST VIRGINIA.—Persons wishing to secure health or recreation, should visit this celebrated place. September is as good a month to be there as any other, and Col. Peyton has reduced price of board from \$3.50 to \$2 per day. Take our advice and try the old White.

"LINDEN GROVE."—Sales recently made by T. S. Cooper, "Linden Grove," Coopersburg, Pa.: To Thomas L. McKeen, Esq., Easton, Pa., Ayrshire Cows, "Fair Maid of Perth and Cream 4th."

Berkshires to the following parties:

To M. F. & S. W. Dunlap, Jacksonville, Ill., the fine young Imp. Boar, "Duke of Cirencester;" To W. L. Mallow, New Holland, Ohio, four imported sows and one young Imp. Boar Pig; To Lee Rude, Albion, Ill., one trio; To Dan. Bradley, Champaign, Ill., one Boar Pig; To E. Crow, Marion, Ohio, one pair; To Wm. Cochrane, Orangeville, Ohio, one pair; To N. L. Rood, Orchard, Iowa, one Boar Pig; To R. Shannon, Bealeton, Va., one pair; To George Wood, Chestnut St., Philadelphia, two sow pigs; To George W. Jewett, Zanesville, Ohio, one Boar Pig; To M. N. Schebly, Fairview, Ind., one sow; and to Levin J. Krause, Bethlehem, Pa., nine yearling Cotswolds Rams.

We regret very much to learn by private letter that the barn of J. Julian Pratt, of Augusta, was destroyed by fire on the night of the 13th of August. Everything in the barn was consumed, including horses, cows, wagons, carriages, machinery, and hay, wheat, rye, &c., &c., inflicting a loss of \$4,000. Mr. Pratt informs us that he still has a few Berkshires and Jerseys for sale.

TREES! TREES!

The Largest and most Complete Stock of fruit and ornamental Trees in the U. S.

Descriptive and Illustrated Priced Catalogues sent as follows: No. 1—Fruits, 10c. No. 2—Ornamental Trees, new ed., with colored plate, 25c. No. 3—Greenhouse plants, 10c. No. 4—Wholesale—Free.

ELLWANGER & BARRY,

sep Mount Hope Nurseries, ROCHESTER, N. Y.

NURSERY STOCK.

FALL, 1875.

We desire to call the attention of Nurserymen and Dealers to our exceedingly large, thrifty, and great variety of stock for Fall trade.

Special inducements offered in Standard, Dwarf and Crab Apples; Standard and Dwarf Pears, Cherries, Gooseberries, Currants, Elms, Maples, Evergreens, Shrubs and Roses.

Correspondence Solicited.

SMITH & POWELL,

Syracuse Nurseries, Syracuse, N. Y.

PERUVIAN GUANO.

Until further notice, Peruvian Guano, guaranteed to contain 10 per cent. of Ammonia, will be sold by the Undersigned or their Agents, in lots of not less than Ten Tons, at SIXTY DOLLARS CURRENCY per Ton of 2240 pounds, full weight at the time of delivery.

A liberal discount will be made to dealers or others on the entire amount bought during the Spring or Autumn seasons.

HOBSON, HURTADO & CO.,

Agents of the Peruvian Government.
July 1st, 1875. New York.

AGENTS:

B. F. VOSS, Baltimore, Md.

G. W. WILLIAMS & CO., Charleston S. C.

R. G. LAY, Savannah, Ga.

FRESH

GARDEK and FIELD SEED

Send for Catalogue.

feb-1f

W. H. TURPIN.

TO PLANTERS.

TEXAS GROUND BONE.

THE BEST AND CHEAPEST

IN THE MARKET.

Prof. Liebig's analysis of last cargo gives 60 per cent. of Bone Phosphate and $3\frac{1}{2}$ per cent. of Ammonia. Price, \$40 single ton; \$39 for five tons, and \$38 for ten tons. Samples sent by mail.

sep-1t

BOWEN & MERCER, 65 S. Gay Street, Baltimore.

THE

SOUTHERN PLANTER AND FARMER.

ESTABLISHED IN 1840.

A large monthly paper, clearly printed and well filled with a variety of Editorials, Correspondence, and Extracts from other Journals,

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AND

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The Best Paper for a Southern Farmer to Read, and also the Cheapest.

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COE'S AMMONIATED BONE PHOSPHATE.

Established in 1845.

**And has sustained its high reputation for
THIRTY YEARS.**

TESTIMONIALS.

LETTER FROM DR. R. H. STUART, MASTER GRANGE.

Hampstead, King George's County Va., July 29, 1875.

ANDREW COE, ESQ., BALTIMORE, MD.

Dear Sir:—Yours of the 5th instant has not been answered. I am well satisfied with your Ammoniated Bone Phosphate which I used on my wheat last fall; the yield is very fine and the quality No. 1 I shall want more this fall.

Yours, very truly,

R. H. STUART.

Gloucester C. H., Va., Gloucester Co., July 26th, 1875.

MR. ANDREW COE:

Dear Sir:—I would state that I used your Phosphate last spring by the side of J. J. Turner's, and the advantage of yours over Turner's was so decided that I would like to use yours altogether. I shall want four or five tons for my wheat this fall.

Yours, respectfully,

M. R. SMITH.

Broad Neck, Kent Co., Md., August 7th, 1875.

ANDREW COE, ESQ:

Dear Sir:—Yours of July 6th came to hand at a time when it was impossible for me to comply with your request. Since that I have threshed my wheat, and find the result from the four tons of your Phosphate highly flattering, and that it excels Turner's Excelsior (equal number of pounds applied per acre) and Bone Meal, where 500 pounds was applied per acre to 200 pounds of Coe's, in the yield of grain. I applied Coe's on the poorest land on the farm, Turner's and the Bone Meal on much better land, still the yield was greatly in favor of Coe's.

Yours, respectfully,

W. J. VANNORT.

LETTER FROM COL. R. B. COLEMAN, PROPRIETOR OF THE CARROLLTON HOTEL.

Baltimore, Aug. 10th, 1875.

ANDREW COE, Esq:

Dear Sir:—I used your Phosphate last year, and also this year, and found it a very superior article.

I asked my farmer this morning what I should say about it. He said I could give you the very best recommendation of its merits. I shall want some more this fall for my fall crops.

I am, truly yours,

R. B. COLEMAN.

Kent Island, Queen Ann's Co., Md., July 30th, 1875.

MR. ANDREW COE:

Dear Sir:—Of the eight tons of Phosphate I bought of you last fall, I used seven tons on my wheat, and I have to say it gave me great satisfaction, having never raised a better crop. One ton I exchanged with a neighbor for another make, and I lost many bushels; by it I do not think I get more than half as much wheat as where I used your Phosphate. Yours, very respectfully,

JAMES WRIGHT.

LETTER FROM DR. THOMAS C. PRICE, CHAIRMAN EXECUTIVE COMMITTEE OF CHARLES COUNTY GRANGE.

Cross Roads, Charles County, Md., July 28th, 1875.

ANDREW COE, Esq., Baltimore, Md:

Dear Sir:—I used your Phosphate on my wheat last fall, three hundred pounds to the acre in drill, from which I made a good and satisfactory crop. My experience is to apply a liberal dressing of fertilizers for a paying result. Work less land and manure more liberally. This, with good cultivation, will give us remunerative crops, and permanently improve our land, provided we invariably apply clover and other grass seed also liberally. I used your Phosphate on corn this season, which is growing finely.

Respectfully,

THOMAS C. PRICE, M. D.

Fairlee, Kent County, Md., August 3d, 1875.

ANDREW COE, Esq:

Dear Sir:—I purchased last fall two tons of your Phosphate, for the purpose of testing it with other brands. Being unexpectedly called from home about the time for seeding wheat, I directed my men to drill it in with the wheat at the rate of two hundred pounds per acre. On my return I found they had applied it at the rate of one hundred pounds, instead of two or more, as directed. As a portion of the field where applied was very poor, I imagined that so light an application was money wasted; but on harvesting my wheat on that portion, I found a very heavy stand of wheat, about 18 or 20 bushels per acre, where, if no fertilizer had been used, I am satisfied I should not have had more than six or eight bushels.

I remain, yours respectfully,

T. A. HULME.

Greenwood Farm, near Savage, Howard County, Md., August 4th, 1875.

MR. ANDREW COE:

Dear Sir:—In compliance with your request to inform you of the effect of your "Ammoniated Bone Phosphate" upon my farm, I would say it affords me much pleasure to state that the result has been highly satisfactory. I believe I was among the first to use your fertilizer in my section, and my experience with its results (especially upon wheat) guarantees me in saying it is the best I ever have used; and as such would cheerfully recommend it to the agricultural community.

Yours, very respectfully,

A. DONELSON.

ANDREW COE,
Office, 52 Light Street,
Baltimore, Md.

G. W. ROYSTER & CO., Commission Merchants, RICHMOND, VIRGINIA.

Solicit Consignments of Tobacco, Grain, Flour and Produce Generally

Refer by Special Permission to J. W. LOCKWOOD, Cashier National Bank of Va., Richmond; ISAAC DAVENPORT, Jr., Pres. First National Bank, Richmond.

Grain Bags furnished on application.

PEAR TREES FOR THE MILLION.—Largest stock in the West; extra quality; packed to go safely any distance. Satisfaction guaranteed. Prices low by hundred or thousand. A full assortment of other trees, shrubs, plants, etc. Send list of wants for prices. R. G. HANFORD, Columbus Nursery, Columbus, Ohio.
sep—2t

GAME BANTAMS.—My Black Reds and Duck wings have won both first, second and special premiums wherever shown, viz: At Hartford, 1871; Albany, 1872; Philadelphia, 1872; Worcester, 1874; Philadelphia, 1875; and Buffalo, 1875. Also, a few very choice Black Red Games for sale. Eggs, \$5 per dozen for Bantams. \$6 for Games. Address, with stamp, E. K. SPAULDING, Cedar Creek, Ocean Co., N. J.
sep—tf

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UPPER JAMES REAL ESTATE AGENCY.

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Cartersville, Va.

Who offers for sale upwards of 20,000 acres of land, lying in one of the most desirable regions of Eastern Virginia.

Catalogues sent on application.

[Mr. Holman is one of the most reliable farmers in the State. Those wishing to buy land should send for his Catalogue].
Aug—tf

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**3 MONTHS
FREE.**

will be sent free 3 months to all who will send us a 3 cent stamp to prepay postage, as law now requires prepayment of postage. We do not ask any one to subscribe for our paper until they know what they are to get. It speaks for itself. Price only \$1 per year. Purdy's Small Fruit Instructor is a work of 64 pp. that tells in simple language just how to grow fruits in abundance for home use or market. Price, 25 cents postpaid.

A. M. PURDY, Rochester, N. Y.

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UNEQUALLED if judged critically, UNAPPROACHED in capacity and excellence by any others. Awarded

THREE HIGHEST MEDALS

AND DIPLOMA OF HONOR AT
VIENNA, 1873; PARIS, 1867.

ONLY American Organs ever awarded any medal in Europe, or which present such extraordinary excellence as to command a wide sale there.

ALWAYS awarded highest premiums at Industrial Expositions, in America as well as Europe. Out of hundreds there have not been six in all where any other organs have been preferred.

BEST Declared by Eminent Musicians, in both hemispheres, to be unrivaled. See TESTIMONIAL CIRCULAR, with opinions of more than One Thousand (sent free).

INSIST on having a Mason & Hamlin. Do not take any other. Dealers get LARGER COMMISSIONS for selling inferior organs, and for this reason often try very hard to sell something else.

NEW STYLES with most important improvements ever made. New Solo and Combination Stops. Superb Etage and other Cases of new designs. PIANO-HARP CABINET ORGAN An exquisite combination of these instruments.

Organs sold for cash; or EASY PAYMENTS, for monthly or quarterly payments; or rented until rent pays for the organ.

CATALOGUES and Circulars, with full particulars, free. Address MASON & HAMLIN ORGAN CO., 154 Tremont Street, BOSTON; 25 Union Square, NEW YORK; or 80 & 82 Adams St., CHICAGO.

BAUGH'S STANDARD MANURES.

BAUGH & SONS,

High Grade Manure for Tobacco & Grain

BAUGH'S RAW BONE **TRADE MARK** SUPER-PHOSPHATE of LIME.

The old established analysis. Also, Pure and a full line of chemicals.



article sold under a guaranteed Ground Bones, Pure Bone Meal, icals for making super-phos

ap—6t

BAUGH & SONS,
No. 103 South Street, Baltimore, Md.



Massillon Harvester

Buy the Best.

TWO men bind
Ten Acres daily.
Binders can SIT
or STAND. Ad-
dress, EDWIN
BAYLISS,
Massillon, O.

WALNUT GROVE FARM.

THOROUGHbred and GRADE JERSEY
CATTLE. BERKSHIRE and ESSEX SWINE.
BRONZE TURKEYS and BRAHMA FOWLS.

I took 1st premium on Thoroughbreds, (Male and Female,) and 1st premium on Grade Jerseys, also, 1st on Bronze Turkeys at Va. State Agricultural Society, 1874.

Prices moderate—Satisfaction Guaranteed.
Address,

G. JULIAN PRATT,
mar—1y Waynesboro, Augusta co., Va.



BLATCHLEY'S

Improved Cucumber Wood Pump is the acknowledged Standard of the market, by popular verdict, the best pump for the least money. Attention is invited to Blatchley's Improved Bracket, the Drop Check Valve, which can be withdrawn without disturbing the joints, and the copper chamber which never cracks, scales or rusts and will last a life time. For Sale by Dealers and the trade generally. In order to be sure that you get Blatchley's Pump, be careful and see that it has my trade mark as above. If you do not know where to buy, descriptive circular, together with the name and address of the agent nearest you, will be promptly furnished by addressing with stamp,

CHAS. G. BLATCHLEY, Manufacturer,
mar 506 Commerce St., Philadelphia, Pa.

TO FARMERS,

Bowen & Mercer's Super Phosphate

REDUCED TO

\$40 for single ton; \$38 for five tons and over; \$35 for ten tons and over.

Warranted Equal to any Manufactured.
Send for pamphlet of testimonials,

BOWEN & MERCER,

mar—1y S. Gay Street, Baltimore.

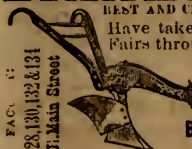


TIN WIRE RINGS.

Will not make a Hog's
Nose Sore.
Hardware Dealers sell them.
Binger, \$1; Tin Rings (100),
60c; Coppered Rings, 50c;
Tongs, \$1.25; by mail, post-
age paid. Circulars free.

BRINLY PLOWS

BEST AND CHEAPEST IN USE.



Have taken over 300 Premiums at
Fairs throughout the South. Send for
illustrated Catalogue with
Price List, and certificates
of planters who use them.

SOLE MANUFACTURERS:
BRINLY, MILES & HARDY
LOUISVILLE, KY.

Thoroughbred Stock for Sale.

I am breeding Thoroughbred Devon Cattle, Poland China, and Essex Hogs, South Down Sheep, &c. Also Light Brahma Fowls, and have for sale several pairs of White and Black Guineas. Persons ordering from me can rely on getting as good stock as any in this country. My herd of Devons are of the most improved strains. They took 7 first premiums at our last Virginia State Fair. For further particulars,

F. W. CHILES,

feb—6m Louisa C. H., Va.

CANCER ! CANCER ! !

Attention is called to the great success which has been achieved in the permanent cure of this loathsome disease, by the use of

Bendall's Eureka Cancer Salve.

Hitherto it has baffled the best medical skill, and the poor unfortunates with this leprosy, clinging to their bodies and eating out their vitals, are left to drag out a miserable existence. Testimonials of the most convincing character are accumulating daily, and many heretofore incredulous, are now entirely satisfied as to its inestimable value.

F. H. ROBERTSON & SON, Index-Appeal Office, Petersburg, Va., are the General Agents, to whom all letters for information, and orders for Salve should be addressed.

March 11

BOTTOM TOUCHED.

Dry Goods at Lower Prices than Ever.

Money saved by buying your Dry Goods from Levy Brothers,

Who have made large purchases since the recent decline.

Fancy Grenadines at $8\frac{1}{2}$, 10 and $12\frac{1}{2}$ c. per yard, worth $16\frac{3}{4}$, 20 and 25c.; Rich Styles Fancy Grenadines at $16\frac{3}{4}$, 20, 25, 30 and 35c., worth from 25 to 50c.;

Black Grenadines in all qualities from $12\frac{1}{2}$ c. up to \$2.25 per yard—this embraces not only the cheapest, but best assorted stock ever offered in this city;

Eccru Linen Tussore Suiting at $8\frac{1}{2}$ c. per yard, worth $16\frac{3}{4}$ c.; at $12\frac{1}{2}$ c., would be a bargain at 25c.; at $16\frac{3}{4}$ c., worth 30c.—these goods must be seen to be appreciated; Silk-Warp Japanese Stripes and Plaids at 30c. per yard, worth 50c.;

Japanese Cloth at $12\frac{1}{2}$ c., worth 25c.; Wash-Poplins, best goods manufactured, at $12\frac{1}{2}$ c. and 15c., worth $16\frac{3}{4}$ and 25c.; Debèges, at 25, 30, 35, 40 and 50c. These goods can be had in all the new shades;

New style Plaid Dress Goods from 25 to 50c. per yard—a reduction of from twenty-five to fifty per cent. has been made in these goods; Fast-Colored Lawns at $8\frac{1}{2}$, 10, $16\frac{3}{4}$, 20, 25, 30, $37\frac{1}{2}$ and 50c.;

Also, at the lowest prices, Pongees, Mohairs, Japanese Silks, Jaconets, Cambrics, Linen Lawns, and all other styles of fashionable dress goods; Black Alpaccas at 25, 30, 35, 40, 45, 50, 60, 75, 85, 90c., \$1 and \$1.25;

Australian Crepe at 50, 60 and 75c., worth 65c., 75c. and \$1; Yard-wide Printed Percales and Cambrics at $12\frac{1}{2}$ and $16\frac{3}{4}$ c. per yard—regular prices, $16\frac{3}{4}$ and 25c.;

Victoria Lawns at $16\frac{3}{4}$, 20, 25 and 30c.; also, Piques at $16\frac{3}{4}$, 20, 25, 30, 35 and 40c.—all remarkably cheap; Swiss Muslins from $12\frac{1}{2}$ c. up to 50c. per yard—all very cheap;

Checked and Striped Nainsook Muslins, Checked and Striped Swiss Muslins; Corded, Striped and Figured Piques—all at extraordinary bargains;

Lonsdale Cambric, first quality, one yard wide, at $16\frac{3}{4}$ per yard; Knight's Cambric, 33 inches wide, at 10c., would be a bargain at $12\frac{1}{2}$ c.;

Utica Sheeting, 10-4 wide, in remnants from two and a half up to ten yards, at 40c. per yard; 50c. is the regular price everywhere; Remnants of Dress Goods of every description to be sold at less than half value;

Black and Colored Silks at lower prices and in greater variety than at any other establishment in this State; Embroidered Curtain-Muslin, one yard wide, at 25c., worth $37\frac{1}{2}$ c.;

Hamburgh Net for Curtains, at 20, 25, 30, 35, 40, 50c., and up to \$1 per yard; Hamburgh Lace Curtains from \$4 to \$30 per set for two windows; Hamburgh Lace Lambrequins, from \$2.50 up to \$5 a pair—all very cheap and desirable;

Window-Shades in great variety, among which will be found an exact imitation of lace shades, now so fashionable: A large assortment of Curtain Fixtures, such as Cornices, Bands, Loops and Hooks;

Black, White and Eccru Hamburgh Nets, at a reduction of 50c; A full assortment of Laces suitable for trimming; A large assortment of Silk Neck Scarfs and Ties; Also, Black Lace Scarfs and White Lace and Muslin Scarfs;

Ready-Made Dresses for ladies in all of the latest styles, from \$3 to \$25; A full assortment of Under-Garments at extraordinary low prices; A large assortment of Ducks and Drillings for boys' and men's wear;

Sash Ribbons at 25c., 30c., 35c., 40c. and 50c., and up to \$1.25 per yard—all extraordinarily cheap; A full assortment of Ribbons from a half-inch up to seven inches at the lowest prices; Gauze Shirts for men and women—some as low as 40c. for men;

Bustles in all the new styles; also, Hoop Skirts and Balmorals; Matting, Oil-Cloths, Rugs, Carpets, Mats and Hossacks; Rubber, Jet and Gold Plated Jewelry in great variety; Summer Shawls, Lace Points and Jackets;

Black Grenadine Shawls at \$3, worth \$4; Laces and Embroideries in endless variety at low prices; Goodrich & Barnum's Tuckers at 75c.; Machine Needles at 4 and 5c.; Machine Oil in large bottles at 15c.;

Clark's and Coat's Spool Cotton at 70c. per dozen;

And thousands of other articles not enumerated in this advertisement.

Prompt attention to orders.

July—tf

LEVY BROTHERS, *Richmond, Va.*

CHESTNUT GROVE Stock Farm and Poultry Yards, McKEAN & HULICH, EASTON, PENN.

Fine Bred and English Draft Horses, Asiatic Poultry and Fancy Pigeons, Light and Dark Bramas, Buff, Partridge and White Cochins, Antwerps, Carriers, Barbs, Owls, Magpies and Almond Tumblers.

POULTRY took fifteen Society and nine Special Premiums on Fowls and Chicks, and seven on Pigeons at Lehigh Valley Poultry Exhibition, held at Allentown, January, 1875.

FOR SALE Fine Bred and Draft Stallions, Gold Dust and other Colts. Eggs, Chicks and Pigeons in season.

RICHLAND STOCK FARM, NEAR QUAKERTOWN, PA.

THOMAS L. McKEAN, Proprietor, P. O. Easton, Pennsylvania.

PURE BRED SHORT-HORN CATTLE, JUBILEES,

LOUANS, YOUNG MARY'S, &c.

The above stock has been removed from Chestnut Grove Farm, and on hand and for sale at reasonable prices. Parties wishing to examine the Herd will be met at Quakertown Station, (which is one and a quarter hours ride from Philadelphia, via N. P. R. R.) by writing in advance to the Proprietor, at Easton, Pa.

~~See~~ Catalogues and Circulars upon application.

Aug—tf

Notice to Wheat Growers.

Reduction of Price of

Z E L L ' S

CELEBRATED

Ammoniated Bone Super Phosphate,

Unrivalled for the wheat crop. For sale by agents and dealers throughout the country.

PRICE, \$45.00 per ton, at Baltimore.

“Dissolved Bone Super Phosphate” supplied to manufacturers and dealers at low figures.

We are prepared to furnish Granges with an “Ammoniated Bone Superphosphate of a standard quality, adapted to grain crops, at very lowest price.

P. ZELL & SONS, Manufacturers,

aug—3t

30 South St., Baltimore, Md

SOLUBLE PACIFIC GUANO,

FOR TOBACCO, CORN AND OTHER CROPS.

After ten years' continuous use, throughout Virginia and the South, Soluble Pacific Guano has acquired a reputation for reliability equal to that formerly enjoyed by the Peruvian Guano, and the quantity used annually exceeds that of any other fertilizer.

It has been the aim of all connected with this Guano to produce the best possible fertilizer at the lowest possible cost, and we claim that the unusual resources and facilities of the manufacturers have enabled them to approach this more nearly than has been done in any other fertilizer with which we are acquainted. Those who have been using it unite with us in the opinion, that by its use the consumer gets

THE GREATEST BENEFIT FROM THE SMALLEST OUTLAY.

We offer it with great confidence for use on the Tobacco and other crops to be grown in 1875, with the assurance that it is, in all respects, equal to what it has been in the past.

PURE PERUVIAN GUANO,

AS IMPORTED.

We have a full supply of **No. 1 Guanape Peruvian Guano**, from the Government Agent in New York, selected from one of the finest cargoes ever imported. It is dry and in beautiful order, and contains within a fraction of **13 per cent. of Ammonia**, which is within two per cent. of what the old Chinha Peruvian used to contain—in fact, it would be difficult to tell one from the other.

We offer these standard and thoroughly tested fertilizers for Tobacco, Corn, and all Spring Crops, and are prepared to sell them at such prices as will make it to the interest of consumers and dealers to purchase their supplies of us instead of sending their orders to New York, or elsewhere.

For further information and supplies, address,

ALLISON & ADDISON,

mar—tf

Seed and Guano Merchants, Richmond, Va

ST. JAMES HOTEL,

RICHMOND, VA.

Pleasantly located on Twelfth Street, facing Bank Street and the Capitol Square. In the centre of the business portion of the city, within one square of the Post Office and Custom House, it is, by its retired location opposite the southeast corner of the beautiful park surrounding the Capitol of Virginia, the most quiet hotel in Richmond.

The proprietor having had a life-long experience in hotel business—first at the Everett House, New York, and afterwards as proprietor of the Spotswood Hotel, Richmond, in its best days—and now assisted by Mr. JOHN P. BALLARD, the popular veteran hotel-keeper of Virginia, assures visitors of the ST. JAMES that no effort on his part will be spared to make them comfortable and to keep the house in first-class style. Coaches will attend the arrival of all trains. Elegant carriages are at all times at the service of the traveling public.

june

T. W. HOENNIGER, Proprietor.

THE GREEN SPRINGS ACADEMY,

LOUISA COUNTY, VA.

This pleasantly situated private School for Boys and Young Men preparing for College, will resume recitations October 1st, 1875.

Persons wishing to send their sons to school are requested to apply to us at once. We wish to have only a small school of some twenty-five scholars—one that can be well taught.

For reference, apply to editors of "Religious Herald" or to Professors of Richmond College. Address

C. R. DICKINSON & SON,

jjy-3t

Trevilian's, Louisa County, C. & O. R. R., Va.



W. C. SMITH,

MANUFACTURER OF

SPRING WAGONS, BUGGIES, &c



I have on hand and make to order on short notice, Carriages, Buggies and Spring Wagons, with special reference to the wants of farmers. Light running and strong, of any desired capacity. Workmanship and material guaranteed. Prices lower than the same quality of work can be bought at in this or any other city. Orders solicited. Letters of inquiry promptly answered.

Repairing promptly and reasonably done.

W. C. SMITH,

my-6m

308 Fifth Street, Richmond, Va.

WAGONS! WAGONS!

The subscriber has on hand

WAGONS AND CARTS

of various descriptions, that he wishes to dispose of on very moderate terms, and is still manufacturing others, and solicits a call from all in want of any article in his line, and he guarantees good workmanship, and first-rate material.

A. B. LIPSCOMB,

my

116 Cary Street, between Adams and Jefferson.

CHESAPEAKE AND OHIO R. R.

On and after SUNDAY, June 13th, 1875, passenger trains will run as follows:

FROM RICHMOND:

Leave Richmond,	9.30 A. M.	9.10 P. M.
Arrive at Gordonsville,	12.45 P. M.	12.30 A. M.
Arrive at Washington,	7.33 P. M.	6.33 A. M.
Arrive at Charlottesville,	1.45 P. M.	1.24 A. M.
Arrive at Lynchburg,	4.50 P. M.	4.50 A. M.
Arrive at Staunton,	4.10 P. M.	3.30 A. M.
Arrive at Goshen,	5.56 P. M.	5.14 A. M.
Arrive at Millboro',	6.17 P. M.	5.36 A. M.
Arrive at Covington,	7.51 P. M.	7.06 A. M.
Arrive at Alleghany,	8.59 P. M.	8.14 A. M.
Arrive at White Sulphur,	9.15 P. M.	8.32 A. M.
Arrive at Hinton,	12.15 A. M.	10.35 A. M.
Arrive at Kanawha Falls,	4.20 A. M.	1.25 P. M.
Arrive at Charleston,	6.15 A. M.	3.25 P. M.
Arrive at Huntington,	8.30 A. M.	5.45 P. M.
Arrive at Cincinnati,		6.00 A. M.

Train leaving Richmond at 9.30 A. M. runs daily, (Sunday excepted) stopping at all regular stations.

Train leaving Richmond 9.10 P. M. runs daily stopping at all regular stations west of Alleghany.

Accommodation train leaves Richmond for Gordonsville and all intermediate stations daily (Sunday excepted), at 4.30 P. M.

Pullman Sleeping Car runs on 9.10 P. M. train between Richmond and White Sulphur.

For further information, rates, &c., apply at 826 Main Street, or at Company's offices.

CONWAY R. HOWARD,

General Passenger and Ticket Agent.

W. M. S. DUNN, Engineer and Sup't Transportation.

jy



Imported Berkshire Sow, "Swanwick's Pride,"
Winner of HIGHEST PRIZE, at ROYAL SHOW, ENGLAND
and FIRST PRIZES in Ohio, Penna., Md., and Va.
Under One Year Old.

JERSEY CATTLE.

*Berkshire and Short-faced York-
shires a Specialty.*

GLENDALE STOCK FARM.

Bred from the most noted and *FASHION-
ABLE STRAINS* of *IMPORTED* and *PRIZE
WINNING STOCK*. Selected with great care
from the best Herds and Pens, regardless of
expense.

I guarantee satisfaction.

Correspondence and orders solicited.

Address **CHAS. B. MOORE,**
sep "Glen Dale Farm," Christiana, Pa.

FARMERS AND DEALERS PURE FINE GROUND BONE, PURE BONE FLOUR, PURE DISSOLVED BONE ASH, Pure Dissolved Raw Bone.

66° Oil Vitroil, German Potash Salts,
Pure Chemicals for making Superphos-
phate at the lowest market price.

Call at **R. J BAKER & CO'S.**

Aug—ly

STRAWBERRY PLANTS FOR SALE.

Forty thousand Wilson's Albany

STRAWBERRY PLANTS,

\$3 50 per thousand.

Address

T. L. PAYNE,

Black Heath, Chesterfield County, Va.

Encourage Home Enterprise and buy McGruder's Fertilizer.

The most flattering accounts are being constantly received. For the past twenty years it has been manufactured in the city of Richmond and the thousands of tons sent out have given universal satisfaction. The price is just as low as a good article can be furnished at. For certificates call at office, corner Cary and Eleventh Streets. Herewith are two as a specimen:

Messrs. Currant & Co., Powhatan county, August 23, write that the effects of the fertilizer are all that is represented, and are wonderful on their growing crop of tobacco. In the dry summer of 1872, Dr. R. A. Patterson, with the use of 300 pounds McGruder's Fertilizer to the acre, made twenty-five bushels wheat on poor land, which was fallowed by a first rate clover crop. For further particulars, address,

CHAS. McGRUDER, Richmond.

Clawson Seed Wheat!

The undersigned, who introduced extensively to Virginia the celebrated Fultz, now offers a new, and in some respects, a superior variety—smooth, white, hardy and very productive. *Warranted Genuine.* Clawson, \$3.25, and Fultz, \$2.25 per bushel, including bags.

Address,

H. S. ALEXANDRIA,
Culpeper, Va

SAUL'S NURSERIES, Washington, D. C.

The undersigned offers a fine stock of the following NEW PEARS: Souvenirs du Congress, Bourne d' Assumption, Pitonaston Duchess, &c. NEW PEACHES: Early Dentree, Early Louise, Early Rivers, Early Alexander, &c., with a collection of new peaches raised by F. Rivers. FRUIT TREES: An extensive stock of well grown trees, pear, apple, cherry, plum, apricot, &c.; grape vines, small fruits, &c. EVERGREENS: Small sizes suitable for Nurserymen, as well as larger stock in great variety.

DUTCH BULBS.—Large importations direct from the leading growers in Holland, fine quality Bulbs: Hyacinths, Lilies, Tulips, &c., new and rare; Greenhouse plants for winter blooming; New Clematises, a fine collection; New Wisterias; roses new and rare. A large stock grown in four and five-inch pots—prices low. New Rose, Duchess of Edinburgh, at reduced rates. Primula Japonica—stony—in five inch pots. Catalogues mailed to applicants.

sep—tf

JOHN SAUL, Washington City, D. C.

FERTILIZERS.

Soluble Sea Island Guano,

ESPECIALLY PREPARED FOR THE WHEAT CROP.

Ammoniated Alkaline Phosphate,

The Granger's Manure. This Manure has been used by them for the past two years, with great satisfaction.

Bone and Meal Fertilizer.

This article is combined with Potash, and contains all the elements necessary for the growth of plant, and maturity of grain.

BALTIMORE AND TEXAS FERTILIZING COMPANY'S Flour of Bone and Bone Meal,

From our Extensive Factory at Fulton, Texas.

Ammoniacal Matter,

Of uniform quality, prepared from the flesh of cattle, at our Texas Factory—an ammoniate superior to Peruvian Guano.

Dissolved Bone.

Bone Phosphate dissolved in Sulphuric Acid, containing 13 per cent. of Soluble Phosphoric Acid.

Potash Salts

Of our own importation.

Sulphuric Acid,

And all necessary articles to make a good Fertilizer.

For Sale at

Corner of South and Water Streets - - BALTIMORE.

R. W. L. RAISIN & CO.